The Builder.

VOL. LXXVI. No. 2938. MAY 27, 1899.

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Ground Floor Plan of South Kensington Museum.—Mr. Aston Webb, A.R.A., F.R.I.B.A., Architect ..... *Double-Page Photo-Litho.*

Liverpool Museum and Technical School: Elevation to Byrom-street.—Mr. E. W. Mountford, F.R.I.B.A., Architect..... *Double-Page Ink-Photo.*

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American Competition.

IN another column we publish some quotations from an interesting letter on the subject of American competition, and the reasons why America is outstripping us in practical and technical work. Public attention is being rapidly directed to a matter which those who have watched the commercial progress of the world have for some time been well aware is increasing in importance. The more the subject is discussed, the more will the public mind become impressed with its importance to our national prosperity. As we have said over and over again in considering the subject of technical education, no real progress can ever be made with it until public interest is so aroused as to create a public opinion. When we get that we shall have obtained the motive power to set the legislative machine in motion.

It is natural, however, that when the country begins to realise the serious character of American competition it should look round in a dazed and puzzled manner. When it hears of large contracts for bridges or railway rolling stock being sent to the United States, there is at once something which appeals to the public imagination. Little bits of household ware, corkscrews and such like, are appreciated as desirable innovations. When the amount paid to American manufacturers is calculated in thousands of pounds the Englishman begins to perceive that things are getting serious.

The correspondent whose letter we quote elsewhere fastens on the discouragement of invention in this country as one reason why the manufacturers of the United States are gaining upon us. But we must go to broader, more fundamental reasons. The United States manufacturers are now getting enormous supplies of the raw material. It is impossible here to go into statistics, but it is the production of raw material, and the creation of the means of transit, which are largely responsible for the present competition. The truth is that, to a great extent, England for many years had, owing very much to her coal mines, a monopoly of many manufactures. She is now beginning to find that if a competitor enters the field profits are at once cut down. We may cry out as much as we like; nothing, however, can minimise this cardinal fact.

As soon, however, as we have competitors it is found that a condition of affairs which did well enough in what we may call pre-historic days is unsuitable now. For example, the competitors have plant and machinery of the newest kind; their rates and taxes are, probably, lower than those to be found in an old country such as England. These things cannot be altered in a day. It is all very well to say to a manufacturer, "Your plant is old-fashioned," but new plant requires a large capital outlay, and it may be better commercial policy to be content with smaller profits arising from existing plant, than to risk investing new capital. There is also another point to be noted which is often overlooked. The proprietors of many of the most important undertakings are the sons or grandsons of those who first made them famous, or shareholders in limited companies. In the United States the leading manufacturers are usually men who have to make their fortunes. The difference is important. For the incentives to competition go a long way towards making such competition efficient.

Again, complaint is made of the cost of transit in England. But it has to be borne in mind that English railways as commercial undertakings are by no means remunerative. The rate of return which they pay would be regarded as small by a business man in connexion with his own business. The South Wales coal strike almost deprived the shareholders of the Great Western Railway of their dividends, thus showing what a narrow margin there is between the present rate of return on the capital and none at all. To ruin one industry to assist another is not sense, and railway directors who protect the interests of the shareholders who have elected them to office are acting as the agents of a large body of the most thrifty of the population. It is a mistake also to overlook the fact that the North of England manufacturers have seaports at their doors, and thus have full equality of opportunity, so far as regards foreign countries, with the manufacturers of the United States.

For this reason we do not think that the competition of the American manufacturer need be so greatly dreaded—we have still a large part of the world for our market. But we have in that market to face competition. We shall probably have to be content with smaller profits; and smaller profits, in an old country, and on smaller capitals than are becoming common in America, means much less return. In other words, it means for manufacturers a living as distinguished from a fortune. But it does not mean that the workman suffers or that the general consumer has anything to complain of. The former still earns good wages, the latter has a larger choice, and is supplied at a lower cost with what he needs.

What is now necessary in this country is an awakening to changing conditions. If this causes a greater keenness in inventions, better terms for inventors, better elementary and technical education, and a general bracing up of the mind of the capitalist and the artisan to the commercial struggle, it can do nothing but good. The English manufacturer, just like the English farmer, has not hitherto appreciated the changing circumstances of the century. But it is not state aid which will keep English manufactures in the front; they must depend on individual effort.

ARCHITECTURE AT THE ROYAL ACADEMY.—II.

WE may continue our remarks on the architectural designs at the Royal Academy by noticing, in the first place, some of the examples of church architecture which we have not already commented on. Church designs are not very numerous; nor is there very much of novelty or originality to be found among them. Character, however, there is in Messrs. Brewill & Baily's "Presbyterian Church, Nottingham" (1,654), chiefly shown in the design of the tower, with its long nearly unbroken buttresses built with a continuous batter. This use of battering lines, even in the main wall surface of buildings, is becoming rather a favourite one now; we see it again here in the small drawing of a tower by Mr. Grocock (1,685). Applied to the main wall surface it is a doubtful expedient, generally implying a waste of material; in buttresses it is legitimate enough. The

curved or ogee lines of the copings of the battlements in Messrs. Brewill & Baily's design are a feature in line which was only introduced a few years ago, but is rapidly becoming a commonplace. The authors of this design (or their draughtsman) have something—one might say everything—to learn about the construction and meaning of a sundial, as they innocently show sundials on both the south and west faces of the tower, the gnomons of the dials at right angles with each other! Apparently therefore they are not aware that the gnomon of a sundial, wherever placed, whether on a pillar or on the surface of a vertical wall, is a line parallel with the earth's axis; they will find the matter intelligibly explained, with a diagram, in an article in the *Builder* for December 21, 1889. No plan of the church, by the way, is given. Mr. E. P. Warren does not fall into this latter condemnation, affixing a small plan to his pretty pencil sketch of the church of "St. Martin, Bryanston" (1,658), chiefly noticeable for the treatment of its massive tower with heavy buttresses, with which the rest of the building is well in keeping. Mr. Caröe's large and finely tinted drawing of the "Tower of St. Mary, Yate, Gloucester, as now completed" (1,675) does not show how much of the tower is old, as we suspect a portion of it is; this may account for the want of definite point and contrast in the design; if the blank traceried windows in the middle stage are ancient, there was nothing for it but to repeat somewhat the same design in the windows of the upper stage; otherwise, the middle stage would have been better left as blank wall.

Messrs. Mallows & Grocock's "St. Matthew's Church, Willesden" (1,709), a "passage-aisle" church in which a plan is shown on the same scale as the elevations (an unusual indulgence in the Architectural Room of the Academy), appears to have some special point in the arrangement of the plan, which, however, is hung too high to be well seen. Mr. R. W. Paul's three drawings, of the new chancel and transepts at Chard Church, Somerset (1,787), the lych-gate at Wootton Fitzpaine (1,708), and the new screen at Abbey Dore parish church (1,720), are illustrated in the present issue, and therefore require no description here; they all show knowledge of mediæval style combined with good drawing. Messrs. Walter A. Hills & Sons' "Proposed Church, Bromley-by-Bow" (1,715: no plan), shows in neat pencil elevations a simple design apparently with a single-span roof, a clearstory being formed by dormers in the roof slope. A more important work is Mr. Caröe's "St. Matthew's Willesden" (1,716), a tinted pencil perspective of the east end; it has the appearance of being a brick church, from the treatment of the drawing, with an east window divided by large mullions, almost of the scale of piers, into three sections, a treatment rather frequent now, and which gives a very solid appearance to a window design, though it may be questioned whether the effect of these decisive vertical lines butting against the arch line is always satisfactory. The east wall is flanked by two perfectly plain octagonal angle buttresses; the design of the transept end is in the same severe style; a small turret with a low-pitched hipped roof rises above the rest of the building, and is treated with a good deal of character; altogether this is a drawing to repay attention. A small plan is added. Messrs. Stokes & Hine's "All Saints' Convent, Colney Chapel, St. Albans" (1,723), may count with the church designs, though the chapel is not actually shown in the drawing; it is a view in the cloister court, noticeable for the treatment of the cloister windows, which are segments of circles springing directly from the sill line, with no vertical jamb, and filled with tracery; the effect is good and a little unusual; the gate-tower at the side is commendably massive in character, but has a somewhat unfinished appearance at the top. The projecting bays or oriels above the cloister arcade look rather intruders, and do not improve the general effect. Mr. J. W. Simpson's "Union Church, Brighton" (1,753), is the largest church design in the room, if, indeed, we are to call that a church which has more the character of an "Institution" or some other entirely secular building, but it probably belongs to a denomination with whom this is of no consequence. The plan consists of a square centre space out of three sides of which open large semi-circular bays, the fourth side being flat; not a very good outline of plan for an interior. The façade towards the principal street is treated partly as a kind of screen decorated with an order of attached columns, the staircase blocks at each end being emphasised by rather heavy lantern erections over them; there is a large dome over the centre, but its lines are not marked on the plan, and its relation to the substructure is not very apparent; its construction in fact must be rather a sham. The general effect is ambitious but the details are coarse and commonplace.

Three interiors should be mentioned; that by Mr. Fellowes Prynne of "Holy Trinity Church, Roehampton" (1,726), chiefly noticeable for its built stone traceried screen filling the chancel arch, a revival of a mediæval treatment which Mr. Prynne has made almost a feature of his own; Mr. Goldie's "Church of Our Lady of Lourdes, Acton" (1,832), a quasi-Romanesque interior of fine style, treated with a certain amount of colour in the ceiling and dome, with decorations on a blue ground; and Mr. Seth-Smith's "St. Luke's, Maidstone" (1,777), an interior showing a good deal of originality in the design of the piers and arcade.

Designs for church furniture, &c. (not very numerous), may fitly be grouped with church designs. The most important of these, the "Sketch working model for bronze screen at Whippingham" (1,925), by Mr. Alfred Gilbert, is among the sculpture in the lecture room, but was intended, we understand, for the Architectural Room. The model shows an arcade of Transitional character, the bays filled in with gilt metal-work of a very free style of design, and rather too sketchy to enable one quite to appreciate the detail. As far as it can be judged of, however, we are inclined to think that this very free style of design in metal-work, which Mr. Gilbert has had a good deal of influence in introducing, however well it may go with sculpture, tends rather to lose the quality of decision and purity of line which should characterise architectural metal work, and has rather too much the appearance of metal tied up into knots. To return to the Architectural Room, Mr. Horsley exhibits there a pen drawing of his "New Screen, Ipstones, Staffordshire" (1,623). This is generally Gothic in style, but with some rather new and free treatment of detail; the posts which form the chief upright members are square in section and unmoulded, and covered, as well as various panel portions of the design, with small conventional floral ornament. The impression produced by the drawing is that this ornament is intended to be painted, and that the whole would have been shown better in a coloured drawing; as it is, one has rather to guess at the effect in execution. Mr. Caröe exhibits a drawing of the wooden carved reredos for St. David's, Exeter (1,674); the wide panel margin springs from brackets at each side, and is carved with figures in the vertical portions, the horizontal panels being left plain. Mr. R. A. Briggs exhibits a design for an altar and folding reredos for Jesus Chapel (1,800; we are not told where the chapel is—is it that of Jesus College, Cambridge?); the general effect, all gilt, is very rich, but the drawing is sketchy and does not give the detail clearly. Mr. Ralph Knott exhibits a small sketch of a font (1,711) of very pleasing and original design, with tapering colonnettes at the sides, and a dome-shaped metal cover crowned by a little bronze winged figure. Mr. H. Wilson's "Design for a Chalice" (1,694) for St. Bartholomew's, Brighton, is hung rather high; the knops appear to be formed of a twisted serpent; the treatment of the base is rather wanting in decision of line. The drawing shows all the author's usual mastery of effect in water-colour drawing. The same exhibitor's "Design for a Calvary" (1,627) for the same church, a dark crayon drawing hung too high to be well seen, seems rather to come under the head of sculpture design than architecture. A small sketch exhibited by Messrs. Rogers, Bone, & Coles, for a pulpit and bench-end for St. Brelade's Church, Jersey, exhibits a good deal of character in work of a simple and inexpensive order.

Among the drawings representing civil architecture is Mr. H. B. Garling's "Study for the principal façades of the New War Office, in the original competition of 1857" (1,864). This at the present moment is of some interest, taking us back to the former epoch in the undertaking, and illustrating the design and drawing of nearly half a century back. The drawing is a large perspective view of the proposed building, which is grandiose in general character, with large square centre pavilions rising above the cornice line on each face, and smaller ones at the angles. What it wants is more concentration in the design; it is in fact Classic treated in a rather Gothic spirit, aiming at multiplicity rather than breadth of effect; the windows all separate and each with its own framework of pilasters, except in the two rusticated lower stories, forming a basement which does quite sufficiently detach itself from the rest of the design. The weak point in the design is the semicircular *frontons*, as the French call them, in the centre of the raised pavilions, with nothing behind them; a feature which would hardly be introduced in the present state of architectural taste. But the author did quite right to exhibit the design again, and has added a point of interest to the exhibition in doing so.

Among other works of secular architecture (excluding domestic, which we will deal with separately) Messrs. Bateman & Bateman's

"Cannon-street Hotel, Birmingham" (1,632), has more character than one generally sees in hotel architecture, and is entirely free from the "showy" element so disagreeably prominent in the average hotel building. It has a stone basement with plain mullioned windows, supporting a brick structure over it, with a boldly treated gable and semi-octagon turrets on carved stone corbels. The authors are to be commended for showing also complete plans of the building. Messrs. Lanchester, Stewart, & Rickards exhibit their very effective drawing of the selected design for Godalming Town Hall (1,636), published in the *Builder* of November 12, 1898; but they do not give the plans. In their competition design for memorial buildings, Singapore (1,647), Messrs. Ashley & Armstrong have cleverly contrived to impart a certain degree of oriental character and outline to a building mainly treated with classic details. Mr. W. S. Bates's clever design for a concert-hall (1,661), sent in competition for the Soane medallion, we have already published and commented on; we are glad to see it exhibited here. Mr. R. J. Lovell's "Newport and Monmouthshire Hospital" (1,683), a large perspective drawing of little architectural interest, is of no value without plans of the building, without which no hospital design ought to be exhibited at all; the picturesque, even if it were present (which it is not in this case), is not the object of hospital designing.

Messrs. Hall, Cooper, & Davis exhibit a small water-colour drawing, hung too high to be well seen, of the "North-east Angle of New College, Scarborough" (1,695), which looks a very effective bit of design, consisting of a brick tower-like erection, projected diagonally at the angles, and partially enclosing a polygonal two-storied bay in stone; the general effect is very picturesque. It certainly contrasts favourably, as a bit of collegiate architecture, with Mr. Champneys' bald and coarsely drawn elevation of "New Buildings, New College, Oxford," without a detail that could not be got out of books of late Gothic work, and which is hung on the line, one cannot tell why. "A Part of Trowbridge Technical School" (1,703), by Mr. Thos. Davison, deserves mention as a good coloured detail elevation of part of a stone front. In his "New Town Hall, Henley-on-Thames" (1,765), Mr. Hare has given municipal character to a town hall for a small town, without departing from the simplicity of treatment suitable in such a case; the building has what may be called a municipal front—a pediment on coupled pilasters and with boldly-carved Royal arms under; the projections at the side are pedimented also, to give a finish to the "municipal" front; behind it the building is very simply treated with rows of windows and no architectural pretension. This is one of the most satisfactory designs of its kind in the room; it is a pity that no plan has been added; Mr. Hare's plans are always so good that he ought to set an example of not exhibiting without them.

Messrs. W. A. Pite & Balfour's "Competition Design for Cardiff Law Courts" (1,789), an elevation, looks very good in general outline, but is hung too high to be seen. A competition design by Mr. R. O'B. North, for the Liverpool Royal Institution, is a curious and unsatisfactory combination of an Ionic order with very small cottage-like mullioned windows and a red-tiled roof; why it is hung in so good a position is another of the puzzles which meet us every year in the Architectural Room. Mr. G. D. Martin's "Flats at Kensington-square" (1,819) represents the commonplace disguised under effective drawing. Mr. Townsend's "Whitechapel Picture Gallery" (1,820), on the contrary, represents the too palpable effort to escape from the commonplace, resulting in eccentricity both in the moral and material sense. Why is the large arched doorway so uncomfortably out of the centre of the front, and what is the meaning of the kind of bracket forms by which the arch mouldings are interrupted? Eccentricities of this kind may interest for the moment, but people will soon tire of them. Mr. A. H. Hart's "Proposed Club House, Woodbury, Devon" (1,856) is a picturesque design with "country town" feeling about it; a little more simplicity in the details, without altering the general grouping, would have improved it. Mr. E. T. Hall exhibits two important drawings, but both without plans. The "Additions to the British Home for Incurables" (1,866) is a picturesque block chiefly in red brick, well contrasted with the stone erection containing the entrance porch; and the block which is evidently the dining-hall is so characteristically designed that there can be no mistake about it, even without the plan. The "Head Offices, Metropolitan Asylums Board" (1,868), is a building on an irregular site, looking rather like a large hotel, and to which a certain special character is given by the semi-circular projections which terminate in small domes; but this is just a case where a plan is required to give the explanation and justification of such features.

Among minor works in civil architecture the following may be mentioned: "Manufactory, Charing Cross-road" (1,748), by Messrs. Roumieu & Aitchison; a good deal more character might be got out of this class of building than is afforded by this regular repetition of cornices and rows of windows all alike; and what is the advantage of the immense vases on the top, as high as the windows—wholly unsuitable to the character of the building and destroying its scale? "Design for a Convalescent Home" (1,834) by Mr. F. D. Clapham; block plan only given, the perspective makes a pleasing group. "Design for Almshouses and Gardens" (Mr. W. E. Dobson (1,846), a pretty sketch, but a kind of thing very easily turned out where there is sufficient dexterity with pencil and brush. "Competition Design for Free Library, Putney" (1,816), by Mr. Sydney Perks; a small, rather bold elevation in Classic style, suitable for its purpose and situation. "Portion of Proposed Street of Flats in Dulwich" (1,784), by Mr. J. W. Rhodes, is a very meritorious design for the characteristic treatment of flats for lower-class tenements; they are mostly roughcast walls, with gabled brick portions at intervals; the gables are treated with a good deal of special character in a simple way. The turning round of the door arches into a three-quarter circle, stopped at the return by a stone upright, looks perhaps a little like a kind of joke; but in the main this is a very good attempt to give character and interest to lower-class street houses.

THE NINETY-ONE ART CLUB.—This club will hold their annual exhibition of members' work at the Maddox-street Gallery, Maddox-street, during the first four days of June.

NOTES.

Decoration of St. Paul's.

IT is announced that at a meeting of the Decoration Committee of St. Paul's on the 15th inst. it was decided that the stencilling should be removed—which we are glad to hear of; and also that the south-west semi-dome should be completed without any decoration of the flat stonework, to consider what would be the best manner of finishing the arches. Thus the two points to which we mainly objected, before any of the hysterical writing in the daily papers commenced, are now secured, and it is to be hoped that there will in future be more caution and consideration exercised as to what is to be done. We are still of opinion that the nave and transepts should be left as Wren left them; but the dome must undoubtedly be decorated, as the choir has been, and as forming a portion of the ritual area of the services. But its treatment requires the greatest care and consideration. We cannot refer to the subject without a word as to the ridiculous exaggerations which have been made by people who talk of the "desecration" of the cathedral by Sir W. Richmond; a kind of expression which stultifies those who use it. The art students who memorialised the Committee got a deserved snub from Mr. Andrew Lang, to whom among others they submitted their memorial, who reminded them that "Sir W. Richmond is your fellow-being, and has probably been an art student." The whole case was very fairly put by the writer of an excellent letter signed "Candour," which appeared in Monday's *Times*, and formed a welcome contrast to much of the exaggerated and spiteful nonsense that has been written on the subject. Sir W. Richmond's exceedingly self-satisfied and "superior" attitude in the matter is of course in bad taste, and has done him no good with the public or the architects; but it does not follow that an artist is incompetent because he has a very good opinion of himself—a weakness which, in fact, is not uncommon with artists.

The City and the London Gas Inquiry.

MR. A. C. MORTON, of the Corporation of the City of London, succeeded Mr. H. E. Jones as witness before the Select Committee of the House of Commons. The Corporation, like the London County Council, is dissatisfied with the price charged for gas by the Gas Light and Coke Company; but we do not think that the citizens of London would view with much favour Mr. Morton's proposal that the South Metropolitan Gas Company should be allowed to compete in the City with the Gas Light and Coke Company. One gas company's staff constantly at work breaking up and laying down City streets is nuisance enough; the presence of a second company would be almost intolerable. Referring to the fact that the City streets are mainly lighted by electric light, Mr. Morton said that, by reason of its great expense, the electric light was worse than the gas. Mr. Doughty, who appeared on behalf of the Vestry of St. Leonard's, Shoreditch, would also give the South Metropolitan Company power to supply gas on the north side of the Thames. We believe that this company would be able to supply gas north of the Thames at a lower price than that at which it is now supplied by the Gas Light and Coke Company; but, in view of the powers

already granted by Parliament to the Gas Light and Coke Company, and the hopeless entanglement of mains and services that would necessarily ensue, the suggestion cannot be regarded as a very practical one. We understand that the Committee has adjourned until June 2.

Electrical Engineers and Telegraphists.

THERE has been considerable discontent lately amongst cable and telegraph engineers owing to the way their branch of the science has been treated by the Institution of Electrical Engineers. With the exception of the papers on wireless telegraphy, which is, of course, a very small branch of the subject, the only paper this year connected with telegraphy was Mr. Elton Young's on the measurement of capacity. Owing to his unavoidable absence the paper was taken as read, and the subsequent discussion was confined within very narrow limits by the chairman. Mr. Alexander Siemens, a former president, managed to make a few remarks praising up the speed of the signalling on one of the cables of the Commercial Company as compared with the cables of the Anglo-American Company. His remarks, based as they were on insufficient data, obviously required answering, considering the magnitude of the financial interests involved, and several of the subsequent speakers desired to do so. They were, however, ruled out of order by the chairman. Although he was technically within his rights, and although most of the members present were anxious that the discussion should be curtailed in order that they might hear the paper on electric traction read, yet as the rules regulating debates had been broken over and over again this year without let or hindrance, the cable experts present, some of whom had come great distances, were naturally indignant. The younger electricians, in their enthusiasm for the more modern developments of electricity, are apt to forget the enormous importance of submarine telegraphy, and the immense capital expended on it—a capital even yet greater than that expended on any other branch of the science. As the Institution was originally established by the telegraph engineers, it seems somewhat unfair that so little attention is paid to their science, and almost undutiful to closure their debates.

British Association of Draughtsmen.

WE have received the prospectus of a new society under this title, which at first looked like a kind of re-birth of the Architectural Association, since the latter institution had its origin in the wish of architectural draughtsmen to meet and know each other. The British Association of Draughtsmen, however, seems to attach a wider meaning to the word draughtsman, as it provides that "members shall be draughtsmen who shall have served at least seven years in office and works or yard of Architects; Civil, Consulting, or Mechanical Engineers; or Shipbuilders." Associates are to be "apprentices and improvers who are attached to and serving their time in any of the above departments from sixteen years of age, until qualified for the election of membership" ("to membership," it should surely be, grammatically). Moreover, the Association is not for London only, but is national. Apparently it is intended as a representative institution of all those who are employed in drawing out constructional work of any kind. Such an association can hardly be formed and properly worked without being of advantage to the large class of skilled workers whom it represents, and we hope it may be successful.

Working Class Dwellings in Coventry.

THE City Engineer and the Medical Officer of Health of Coventry have been commissioned to draw up a Report to the Artisans' Dwellings Committee of the Corporation on the provision of dwellings for the working class. It seems to be admitted that there is a great deal to be done. The Report includes a good deal of information as to experience in other towns, but it does not appear from it that the Coventry authorities are prepared to carry out any very strong measures of reform. In one paragraph it is remarked:—

"They have continually to bear in mind their restricted powers, and to aim at achieving simply that which is the best possible under the circumstances. It would be puerile for them to lay down the dictum that back-to-back houses are undesirable, and should be demolished. We ourselves are fully convinced that their existence is undesirable, but the fact remains, that their cheaper construction allows their rents to be lower than through-ventilated houses, and some large towns at the present moment are allowing their construction. It is impossible, therefore, to condemn such houses, on that ground alone, as insanitary, for no magistrates with the facts fully placed before them would confirm the condemnation."

Surely in that case the Coventry magistrates want educating.

Report on the Health of Liverpool.

THE annual Report of the Medical Officer of Health of Liverpool, a volume of over 200 pages containing a great amount of statistical information, shows among other things that the Liverpool authorities have a great deal to do yet in the way of improving the humbler class of town dwellings and removing insanitary property, though they are evidently not idle in this matter. The last "presentment" in regard to insanitary property referred to a total of 365 houses (not all grouped together), of which fifty-four were uninhabited, owing, in many cases, to extreme dilapidation. The character of the property is thus described:—

"The general arrangement of the dwellings correspond to the well-known and often-described court property in Liverpool, the houses being back-to-back and side-to-side with others, having no adequate or through ventilation, and without a sufficient closet accommodation to fulfil the requirements of health and decency. In many instances little, if any, sunlight could get to the courts, and the atmosphere within the dwellings was always foul, owing largely to the saturated condition of the walls and ceilings, which for so many years had absorbed the exhalations of the occupants into their porous material. Singular testimony to the absence of sunlight in these courts was furnished by the action of the Parks and Gardens Committee, who desired to brighten the homes of the poorest class by gifts of growing flowers and window boxes; but these gifts could not be made in courts such as these, as flowers and plants were susceptible to the unwholesome surroundings, and would not live."

When we come to the case of human beings having to live in courts where no plant will live, we seem to have reached the extreme of insanitary condition. In one case the authorities compelled the demolition of a row of ten new houses built in defiance of the Building Regulations of the City, but it is added that "there are many disadvantages of cheap houses which are quite beyond the control of any public authority." Some photographs attached to the Report show one or two of the slums which are, or are to be, demolished, and one or two views of wholesome and substantial dwellings recently erected by the Corporation.

Wolvesey Castle, Winchester.

WE gather that in reply to a petition recently addressed to them by the House of Laymen for the diocese of Winchester, the Ecclesiastical Commissioners state they have no intention of alienating any part of the palace grounds in respect of the proposed national memorial to King Alfred. The remains of the castle—whose grounds for the greater part are now occupied by the Diocesan Church House trustees—stand on the east side of the Close, being separated from the precincts by the Lock Pond main stream. On that site Henry of Blois, who also founded (1132) the Hospital of St. Cross, built himself a palace in 1138, using the materials of that erected by William I. on the north-west side of the present cathedral grave-yard, but pulled down by Bishop Henry as an encroachment upon church lands. The bishop's palace was rebuilt by Morley in 1684, under Wren's superintendence, and improved by Trelawney (died 1721).* During the contest between King Stephen and Matilda some fire-balls thrown from the castle consumed the later Hyde Abbey, near the city's north wall, whither the remains of King Alfred, his consort, and his sons Edward the Elder and Ethelred had been removed from the New Minster, and on the site of which, near St. Bartholomew's Church, a bridewell was afterwards built. There are views of the palace and castle in Wavell's book, on the margin of Godson's old map, and in Buck's view of Winchester. The palace remained entire, Camden says, until the Civil War, when it was plundered by Waller, and dismantled by Oliver Cromwell. The stones of the castle came from the Binstead limestone quarries which supplied much of the stone for the earlier portions of the cathedral.

Lichfield Grammar School Competition.

THE Lichfield Grammar School competition is another example of the preposterous nature of the claims made upon architects in small competitions got up in small places. The following two quotations from the instructions to architects show what ideas the Lichfield Grammar School Committee have in regard to the treatment of competitors:—

"The premium of *20l.* will be awarded by the Governors to the design which shall, in their opinion, be the best adapted to meet their requirements. The Governors will adjudicate on the designs, and their decision shall be final, but they do not bind themselves to carry out the design to which the premium may be awarded, or any design which shall be submitted to them. . .

In case no design is carried out no remuneration other than the premium shall be paid to the successful competitor, but he shall, if required, supply specifications and sections *without further payment.*"

We may add that, as is generally the case in competitions of this type, the sum named, 3,500*l.*, is quite inadequate to supply the building demanded, as the committee will certainly find out before they go much further into the matter.

* See Mr. T. B. Nicol's drawing (to scale) of the west elevation, by Wren, in the *Builder*, September 24, 1898.

Wanted—Designs for a Church.

THE following letter has actually been received by an architect in London. In forwarding it to us, he says, "I believe that this letter was written in all good faith, but it gives an amusing illustration of the view which I am afraid is held by numerous otherwise well-informed people." We omit, of course, any names which could identify the writer or receiver of the letter:—

"*Re New Church*, ...

SIR,—As treasurer of the above, I should be obliged if you would forward, without prejudice, to the caretaker of the church at the address, any modern drawing you may have, suitable for a Congregational Church costing between the sums of 3,000*l.* and 10,000*l.* These drawings are for exhibition to the members, and would be required at once; they would be returned to you immediately when finished with.

Should this kind of architecture not be in your way, I should be obliged if you would hand this letter to any one in the profession you think best."

Modern Gallery, Bond-street.

LIKE the Irishman who fell from a scaffolding, and on being asked if he was much hurt, replied "that he was not dead, but speechless," so we may say at the present time of the art of needlework, that it is not dead, but lifeless. It is either confined to practical ends, or occupies the idle moments of young ladies between education and social duties. No doubt eminent artists have left the beaten track to turn some attention to it, with beautiful results; not enough, however, to revive it, or even put it in a healthy way of life. Like all crafts, it requires the sole attention of serious artists. There are few books on it; there is no public museum for its preservation, except for a meagre collection at South Kensington. It is therefore very interesting to see a fine collection of antique embroidered pictures, mirror-frames, and caskets on exhibition at the Modern Gallery, 175, Bond-street. Ladies of the seventeenth and eighteenth centuries must have had less to do than those of the present day; some of their work ranks high as art, and can only be the result of the greatest industry and patience. There are some rare pieces of Charles I. reign, and one by Queen Anne herself. Landscapes technically are more successful than the figure subjects, the faces of which are executed in pencil and must be the work of eminent miniaturists. South Kensington is making a slight attempt to imitate some of the beautiful little pictures of the eighteenth century; so is Dublin. But students are much hampered in this copying work by the difficulty in obtaining the same materials, and by the fact that some of the most beautiful of the old stitches are lost. There is no doubt that much of the lead-work of Charles I. can never be imitated, but in other respects we are not so far behind our ancestors in the matter of mere execution; it is the inspiration that is to seek. What is wanted is students' interest on the study for its own sake, instinct with sympathy for new materials and new methods, based on a careful and prolonged study of the historic periods of the art.

NEW POST-OFFICE, GREENOCK.—A new Post-office in Greenock has been erected in Cathcart-street, nearly opposite the entrance to the Caledonian Railway Station. The building, designed by Mr. W. W. Robertson, of H.M. Office of Works, Edinburgh, is in the Renaissance style, and, with the ground, cost about 20,000*l.*

KENSINGTON PALACE.

As the State apartments have been opened this week, we may give a brief account of the buildings. The Palace, standing in the parish of St. Margaret, Westminster, occupies, it is said, the site of Neyte manor-house (belonging to the Abbey), wherein Abbots Litlington and Islip died, the home for a while of John of Gaunt, and the birthplace of John, fifth son of Richard, Duke of York. In 1662 the estate belonged to Sir Heneage Finch—Lord Chancellor, 1675, and Earl of Nottingham, 1681—whose son and successor, Daniel, sold it for 18,000*l.* in 1689 to William III. The greater part of the house was consumed by fire on November 10, 1691. Of the present palace, comprising the Prince's, Princess's, and Clock Courts, and the then "Park," the earliest published survey is, we believe, that by Rocque, 1736. Wren, with Hawksmoor as clerk of the works, designed the south-east block, which contains the Long Gallery, 94 ft. by 21 ft., for William III., and the alcove lately removed from the south end of the Dial Walk to the hollow near Marlborough (formerly Buck Hill) Gate in Bayswater-road*. Hawksmoor carried out some improvements for Queen Anne and King George I. In the reign of the latter, Kent added the east block, with pediment, the entrance corridor, and the grand staircase. Kent's work comprises Queen Caroline's and the King's Drawing-rooms, and the Cupola or Cubic Room (37 ft.); those apartments, together with the Presence Chamber, the Admirals' Gallery, and the staircase, he painted and decorated—as depicted in the coloured views in W. H. Pyne's "Royal Residences," three vols., 4to, 1819. For the coved ceiling of the Presence Chamber he employed the then newly-adopted "Pompeian" style, and put gilt statues of heathen deities in marble niches, with gilt busts above, in the Cupola Room, where is a marble bas-relief of a Roman marriage, ascribed to Rysbrach. The sides and ceiling of the staircase are painted in imitation of a gallery, crowded with spectators, amongst them being Kent himself and two of his pupils; on the ceilings of the Queen's and King's drawing-rooms are, respectively, Minerva attended by the Arts and Sciences, and Jupiter and Semele. Some carvings in the Queen's Gallery and Presence Chamber, and a lime-wood bordure above the chimney-piece of the Queen's Bedchamber, are attributed to Gibbons. Evelyn says that the private gardens, about 26 acres were laid out by Wise; and in No 477 of "The Spectator," Addison cites the work there of Loudon and Wise. They lay to the north, where some yew trees yet remain, and to the north-west, near the Gravelpits, and are sung by Tickell in his eclogue about Kenna and the elfin King Oberon's palace. The grounds added by Queen Caroline were planted by Kent and Bridgman, the wall along the north side of the gardens (27$\frac{1}{2}$ acres) was replaced by Loudon with a railing. Some remains of Nottingham House, including the door bearing the monogram of W. and M. repeated, are in the north block of the palace. Vanbrugh's water-tower, of brick, stood on the Green (or Moor), where also was the conduit-house, with a vaulted roof, demolished in 1871, which Henry VIII. built *circa* 1536 for supplying Chelsea with water; it is illustrated and described by Carter in the *Gentleman's Magazine*, 1815, Part I. In 1893 Messrs. Lionel & Creighton published an account of the six specimens of antique church-plate presented to the chapel by William and Mary, Anne, George I. and George II., the flagon, with cup and cover, being of *circa* 1660, and the helmet-shaped ewer, patens, and alms-dish bearing the several stamps of the famous artificers, George and Francis Garthorne, Henry Herbert, Joseph Allen, and Mordecai Fox. The chapel described in "Old Kensington," by Miss Thackeray, is not the original one, which was replaced during the residence of the Duchess of Kent. Amongst the 660 pictures described by Pyne, and catalogued by West in 1818, we may cite one or two interesting views: Old Hampton Court, by Dankers, Greenwich Palace, *temp.* Charles II., and the Senate House, Venice, by O. Fialletti, with Sir Henry Wotton presenting his credentials to the Doge. At Kensington Palace lived and died William III., Queens Mary II. and Anne, Prince George of Denmark, and George II. It has been the home of the Princess Caroline of Wales; her mother, the Duchess of Brunswick; the Duke of Sussex, who there formed his famous library; his wife, the Duchess of Inverness; and the Duke and Duchess of Kent. In a room at the south-east corner, overlooking the Princess Louise's seated statue of Her Majesty, is a brass tablet, inscribed: "In this room Queen Victoria was born, May 24, 1819."

* To Wren is ascribed the Orangery, or "Banqueting House." See Mr. G. Weald's measured drawings, *Builder*, January 12, 1895; and our "Note" of January 22, 1898.

WHY AMERICA IS GETTING BEFORE US.

FROM a letter on this subject by Mr. James Keith, A.M.Inst.C.E., which has been sent to us, but which is too long to print in full, we extract the following passages:—

"We, in this country, only really require 'equality of opportunity' to hold our own against the whole world. . . .

It may be quite true that at this moment coal, iron, and steel of as good, if not better, quality can be produced in the United States at cheaper prices than in the United Kingdom—which may be accounted for to a large extent by the absence of royalties and the freedom from restrictions in America, and which are so burdensome on the prime cost of these staples in this country—but even with all this granted, a more valid explanation is requisite for the production of steel bridges, watches, printing machinery, sewing machines, steam pumps, type-writing machines, electric appliances, locomotives, wood-working machinery, agricultural implements, &c., &c., which necessitates the employment of the highest kind of skilled labour, in which the Americans excel, and with which they are now supplying the British and European markets, notwithstanding the high price of labour in the United States.

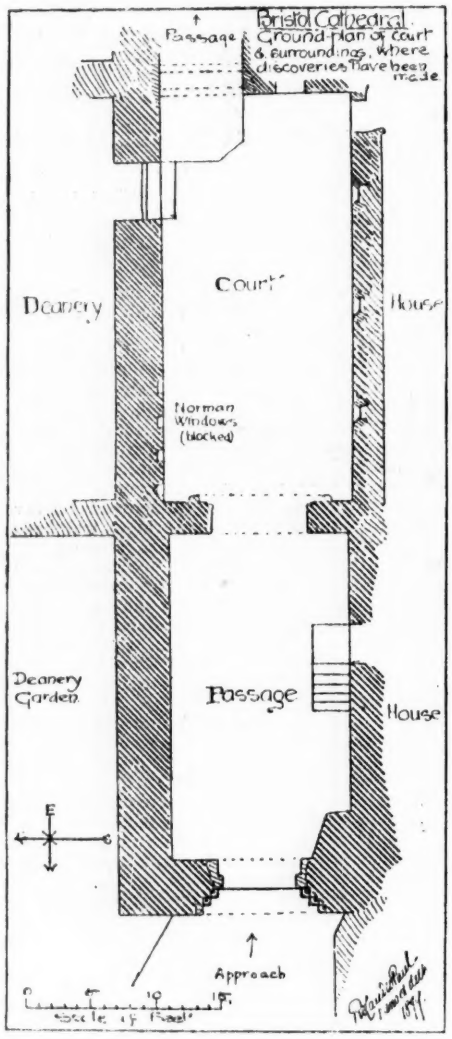
All the talk about the fault being with the workmen and because of strikes and lock-outs in this country is entirely beside the question and amounts to self-deception on our part, as, in the United States, the workmen are more difficult to deal with and are more unreasonable, while strikes and lock-outs there are of greater magnitude and the consequences are, as a rule, infinitely more disastrous than they are here.

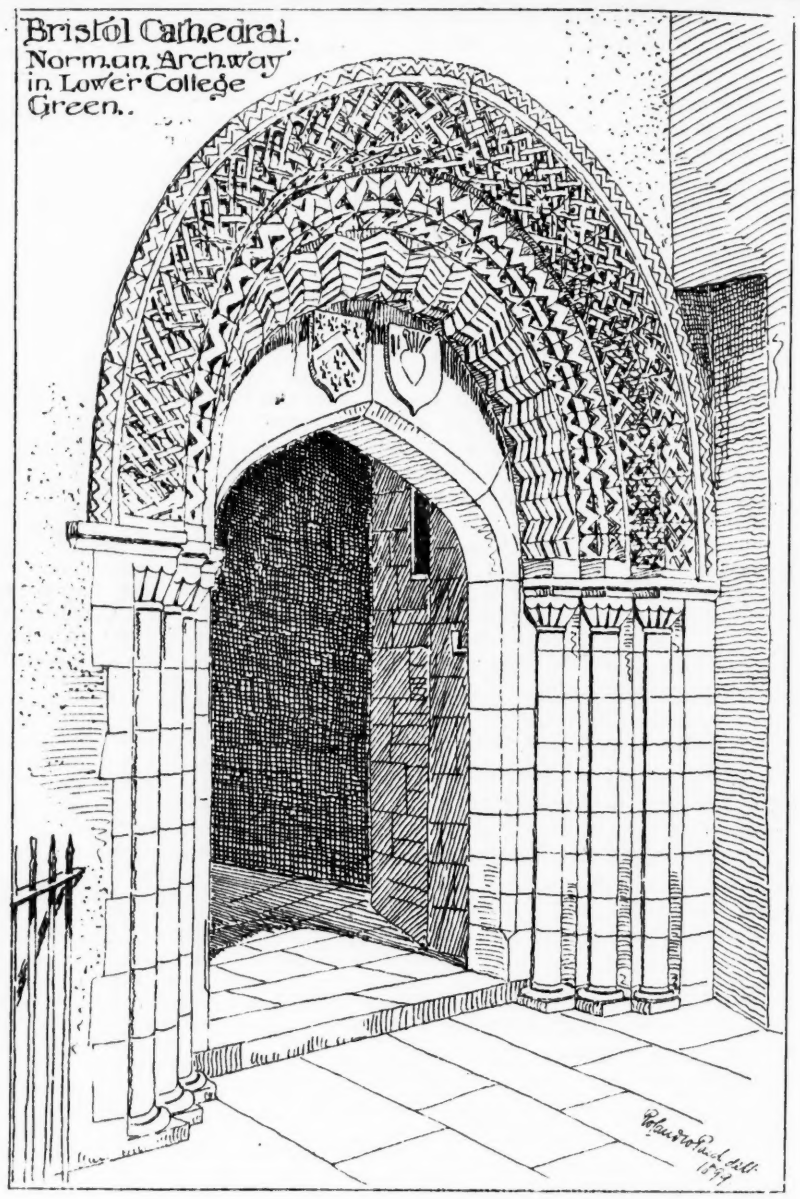
The evil lies far deeper—has been growing for at least twenty-five years, has been increasing rapidly during the past ten or twelve years, and has now got to an acute stage—and that evil is, as has been stated, the lack of equality of opportunity in the United Kingdom. . . .

Invention—which is the life and soul of progress to any nation—instead of being welcomed and encouraged, as it is by the policy of the American Government, is distinctly discouraged and clogged in this country by the policy of the British Government, with the result that invention is still kept at a heavy discount by being taxed at a rate out of all reason, and by being utilised for the mere purpose of reaping a large revenue annually from its most talented and progressive countrymen—the inventors—without giving compensation of any kind of real protection or in even any assurance whatever as regards novelty and validity. The British patent system is a standing disgrace to the country and is incomparable from every point of view almost with the patent systems of Germany and the United States. There is no attempt in the British Patent Office to secure novelty, and when it is mentioned that should two or more identical applications for the same "inventions" be filed the same day and at the same hour at the Patent Office, the Comptroller (unless some outsider, who ostensibly knows nothing about the matter, lodges objections at his own charges), has no power to reject one of them (although the same may be already patented), and the granting of the patents must follow in regular course if the drafting and the drawings, &c., are in order, and the fees be paid; the full value of a British patent may be estimated.

The present Colonial Secretary is mainly responsible for the patent system at present in force in this country, and although since 'The Patents, Designs, and Trade Marks Act, 1883,' drafted and carried through Parliament by the right honourable gentleman, became law, sundry improvements have been effected by outside pressure only, still, the whole system is radically bad, and ought in the interests, not only of inventors, but of the nation at large, to be entirely remodelled on something like the lines of the American patent system, which, though perhaps not absolutely perfect, is the most perfect patent system at the present time in force in any country in the world.

In strong contrast to the policy of our Government, the Government of the United States considers that an encouragement of invention benefits the country and gives a stimulus to the genius and inventive faculties of the people; it very wisely does not attempt to reap a revenue from the brains of its people, but it rather puts a premium on invention—instead of unduly taxing it—by running the Patent Office Department most efficiently but yet as economically as possible. This far-seeing policy enables the American people to take their





proper place in the van of industrial and scientific progress. . ."

See some further remarks on the subject on another page of this issue, under the head "American Competition."

BRISTOL CATHEDRAL.

FOR some little time past, considerable alterations have been made in the neighbourhood of the Cathedral at Bristol, which was formerly the church of the Abbey of St. Augustine. Chief among these alterations has been the making of a new road on the south of the site of the abbey buildings, and the consequent opening-up of views of the monastery hitherto unobtainable. The monastic buildings, now much altered, mutilated, and rebuilt into more modern buildings, have not hitherto appeared very prominently in descriptions of the cathedral and abbey, but some recent discoveries, of which we give illustrations, have called attention to them, and it is much to be hoped may be the means of their being thoroughly investigated. The plan of the cathedral and the cloister court has already been given in the *Builder* Cathedral Series; and the cloister with the buildings on its east side were there shown. Both on the south and west are other buildings, into which remains of the monastic buildings have been incorporated. They consist chiefly of the frater on the south and the scanty remains of a long building, possibly the cellarer's building on the west. This, however, has been much mutilated, and only in the walls of the present deanery, near the south-west angle of the cloister are remains to be seen. The deanery itself apparently is of very early work, and at the south end is an open courtyard approached by a passage from Lower College Green. At both ends of this passage are fine Norman doorways, the western one semi-circular with a later insertion of late fifteenth century date, the eastern one of curious segmental form, perhaps rebuilt with old materials. The passage is 25 ft. long and 14 ft. wide, and is certainly original work of the Norman period. The courtyard is 30 ft. long and about 15 ft. wide. The walls were formerly covered with plaster and rough-cast. This has been removed, and some very interesting details have come to light. The north side is formed by the south wall of the deanery, and near its western end over a simple string-course, Norman lancets have been discovered, one altered in sixteenth century times. Traces of a Norman window are also visible near the north-east angle over a more modern square-headed doorway. The masonry for a few feet above the Norman windows is original; above this is some work of Perpendicular date with several windows of varying size, and the remains of a low-pitched parapet and gable. Both the south and east walls of the courtyard appear to be early work with later windows inserted, and in the east wall is a curious straight-sided arch leading to a passage formerly communicating with the kitchen, frater and lesser cloister. The head of this doorway bears the rebus of Abbot Nailheart (1481-1515), and this rebus with the arms of the Berkeley's also occurs on the western door of the passage (see sketch.) It is therefore probable that the Perpendicular work here is the work of Nailheart, who made considerable additions and alterations to the monastic buildings. The curious segmental form of the Norman arch at the east end of the passage is repeated in two arches south of the chapter-house in the east walk of the cloister, and on the east face of the wall Abbot Nailheart's rebus again occurs.

Of the other monastic buildings, the chief remains are those of the frater (now used as the cathedral school), mostly Perpendicular, but apparently standing on earlier walls. Some traces of Norman work are visible near the south-east corner. To the south of the frater was a second cloister. Of this some fragments remain of the north walls. Eastward are ruins—those of the Bishop's Palace destroyed during the Bristol Riots. There are, however, fragments of Norman and Early English work, and although it is generally said that the Palace was built on the site of the Abbot's lodgings, the ruins are probably those of the infirmary hall, and chapel. South of the great cloister the ground drops suddenly, and the buildings, therefore, were raised on cellarage. This is especially noticeable in the frater when seen from the south.

It is much to be wished that the site of the Bishop's Palace may be thoroughly cleared out. Any doubtful points as to the planning of the building which preceded it would then probably be settled, and give increased interest to the plan of the monastery.

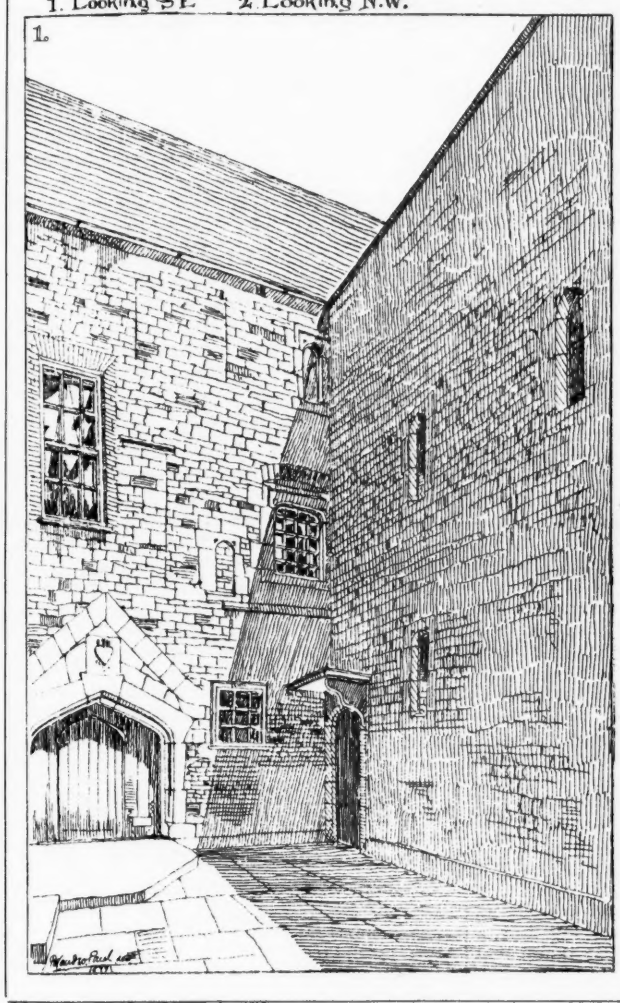
We give illustrations of the western doorway (Norman) of the passages; also two views of the courtyard itself, showing the various features of interest found on the removal of the rough cast. The curious segmental head of the doorway already noted is shown on the left-hand side of the view looking north-west.

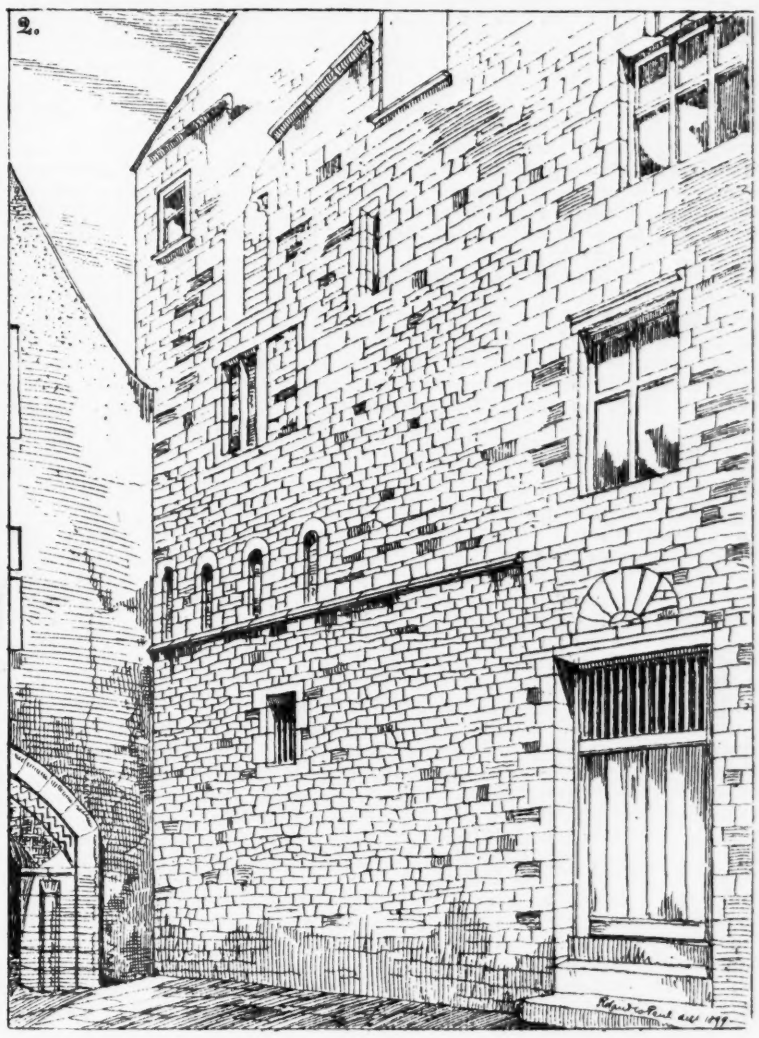
COMPETITIONS.

SCHOOL, AIRDRIE.—The result of the adjudication upon the competitive plans for the new elementary school at Coatdyke, to be erected by the Airdrie School Board, is that the plan by Mr. James Shaw, architect, Coatbridge, has been chosen, that of Mr. William Shanks, Airdrie and Glasgow, being awarded the second place and premium of 10*l*.

NEW MORTUARY, YARMOUTH.—A public mortuary has just been erected at Yarmouth on the North Quay, from plans and designs by, and under the direction of, the Borough Surveyor, Mr. J. W. Cockrill

Bristol Cathedral. - Courtyard south of Deanery.
1. Looking S.E. 2. Looking N.W.





THE PHILADELPHIA EXHIBITION.

THE Philadelphia Exhibition of 1899, the first of its kind in the United States, is to be held under the joint auspices of the Philadelphia Commercial Museum and Franklin Institute from September 14 to November 30 of the present year.

The Exhibition grounds, situated on the west bank of the Schuylkill, comprise a tract of land of fifty-six acres. The grounds are easily accessible, being reached by trolley line within ten minutes' time from the City Hall; also by the Pennsylvania Railroad. Exhibits may be taken into the grounds in the cars in which they are transported.

The main group of buildings will comprise one structure about 400 ft. by 900 ft., and covering an area of more than eight acres. The approach is to be through a broad covered colonnade or porch 160 ft. wide, composed of double rows of columns leading into an open court 275 ft. square. The building west of the colonnade will contain an assembly hall, with seats for 1,200 people, in which will be held the meetings of the International Commercial Congress. From the entrance steps will descend into an open garden, enclosed at the sides by colonnades and ornamented with a central fountain. East of the central building and connected with it will be the Exhibition power-plant. It is adjacent to the Pennsylvania Railroad tracks, affording excellent facilities for landing heavy exhibits. Engines, air-compressors, and dynamo are to be located in one end of the power-house, and in the other the boilers.

A total area of 200,000 square feet of space is available in the main buildings for exhibits, and there is room in the grounds for the erection of such temporary buildings as may be desired by manufacturers, whose exhibits can be more advantageously displayed in separate buildings, and for concessions of amusement or other character.

The foreign buyers in the markets which should be accessible to American goods will find prepared for their inspection, at the Exhibition, an epitome of the products of the United States industries, and samples of similar competing wares from Europe, obtained for the Commercial Museum, for the purpose of comparison and study by American manufacturers, will be displayed. As the Franklin Institute will celebrate its seventy-fifth anniversary in connexion with the Exhibition, it may be anticipated that there will be present a large representation of its widely-distributed membership, embracing engineers, manufacturers, and professional men from all countries. The machinery exhibits, embracing the most improved machines, implements, tools, and labour-saving devices of the United States, will be a comprehensive and interesting group. As far as practicable, these will be operating exhibits.

The main practical object of the Exhibition will be to bring together the American manufacturer and the foreign buyer, whom it is designed to interest in American machinery and products. It is also intended to aid the American manufacturer by showing him how his goods must be packed, labelled, and put up for shipment in order to meet the approval and requirements of foreign trade. The management will, in addition, provide such attractions as will tend to interest the general public and ensure a large and constant attendance.

The Franklin Institute, whose object is the "promotion and encouragement of manufactures and the mechanical and useful arts," is appropriately united with the undertaking. Its history records the successful conduct of twenty-nine exhibitions, beginning with the first exhibition of American manufactures ever held, which took place in October, 1824, the year of its birth, in Carpenters' Hall. The reports and awards of the Franklin Institute are known and prized all over the world, and the grant of a diploma or medal, for the quality and excellence of machinery and products in an exhibition held under its auspices and those of the Commercial Museum, will be a prize of greater significance and value than such evidences ordinarily are.

All communications in regard to the exhibition should be addressed to Mr. W. P. Wilson, Director-General, 233, South Fourth-street, Philadelphia, U.S.A.

NEW THEATRE FOR OLDBURY.—Plans have been passed for the erection at Oldbury, by Mr. Gilbert Osmund, of a new theatre with a seating capacity for 1,000. The architect is Mr. A. Ramsell, of Dudley.

DERRICK CRANES FOR BUILDERS AND CONTRACTORS.

BY M. POWIS BALE, M.I.MECH.E., &c.

DURING recent years the use of steam cranes for building operations has been very largely extended with a correspondingly increased economy both in time and labour. This is perhaps more particularly noticeable in the erection of large buildings where derrick cranes erected on a tower or platform at the top of the building are now almost universally employed. As the derrick crane may be pronounced the builder's crane *par excellence*, we shall on the present occasion confine our remarks to this type. Although many first-class cranes are on the market it cannot be denied that there are also many indifferent ones; it may therefore be of service to our readers when making a selection if we deal in the first place with some of the chief points to be desired in their construction.

Steam Derrick Cranes.—As these cranes are usually fitted with hoisting, lowering, slewing, and derricking motions, and have often to be erected in dangerous places, it is of the utmost importance that they be constructed so as to work with the minimum amount of vibration. To secure this they should be made specially strong and substantial, not only in the framing and jib, but in the gearing and all the working parts, and the workmanship throughout should be of the first class. The centre post or mast should preferably be made of mild steel of ample section, set in a heavy cast-iron bed-plate, truly bored to receive post and turned on top to receive slewing ring and gear. Base-plates are sometimes made of wrought iron, but massive cast iron ones, cast in one piece, are found in practice to give greater rigidity. Crane cheeks made of steel and strongly braced are to be preferred, and the weight and strain of the crane to be carried on anti-friction rollers to secure light and easy slewing.

No overhung shafts should be allowed in the gearing, as they are a fruitful cause of vibration; and this can be readily remedied by fitting a cast-iron bracket on the side of the mast to take the ends of these shafts. All toothed gearing should be of extra heavy section, very carefully made and proportioned, with shafts, intermediate gearing, pins, feathers,

&c., made of steel. Two powerful brakes, capable of holding the full load, should be fitted, one on the barrel wheel and one on the second motion shaft, also safety gear to the derrick barrel. It is important that the hoisting and derricking drums and sheaves of jib be of large diameter (see "Wire Ropes"). All shaft bearings should be of phosphor bronze or good gun-metal, and be adjustable for wear. The hoisting, lowering, slewing, and derricking motions should all be steam-driven, with the lever readily under the control of the driver as he stands on the foot-plate.

As derrick cranes can be readily removed from place to place, are quick in action, and can be arranged to slew to a radius of about three-fourths of a circle, it can be readily seen a large saving may be effected in placing materials in position on a new building, or they may be placed on the ground for quarry work, &c., and the spurs backloaded. They may also be mounted on a travelling carriage, should occasion require, and be traversed by hand or steam; in point of fact, a well designed and constructed derrick crane may be pronounced the most generally useful type for all round builder and contractor's work. Where the crane is required for lifting both light and heavy loads, single and double purchase lifting gear is usually fitted, but where much light lifting has to be done an extra winding drum can be added with advantage. This should be of tolerably large diameter, and with a light steel rope moderate loads may be lifted at a high rate of speed, thus effecting a considerable saving in time over the ordinary gear.

Engines for Crane. — The engines usually fitted to these cranes are of the vertical type, with double cylinders, and there is little doubt there is less wear on cylinders placed vertically than in any other position. Single-cylinder engines are unsuitable for hoisting purposes as they are more difficult to start and are objectionable in other ways. The cylinders to be made of best hard cold blast iron, to be steam jacketted, felted, and lagged.

The crank shaft should be of steel, and to secure steady running, balanced disc cranks can be recommended. The link-motion reversing gear should be of substantial construction, and by preference be made of steel, and all joints, pins, &c., should be case-hardened; crank-shaft bearings to be of phosphor bronze and of ample area, as the pressure on them is oftentimes very severe. They should be made adjustable for wear, and efficient lubrication secured.

Piston rods to be of steel, and all glands bushed with gun-metal. Valves, plunger, and eccentric straps for pump to be of gun-metal.

It will be found advisable to provide both a pump, with an injector in reserve, for feeding the boiler in case of a breakdown, the increase in first cost being very little.

Boilers and Fittings.—A vertical cross-tube boiler made of Siemens-Martin or equal mild steel plates, double rivetted on the vertical seams, and of ample steaming capacity for the power required. Although they take a little longer to get up steam the writer prefers cross-tube boilers to vertical tubular boilers, as they are more readily cleaned and repaired, and less liable to burn out in case of bad feed-water and incrustation. The boiler should be complete with injector, dead-weight, or Salter's spring balance safety valve, pressure-gauge, protected water-gauge, and all usual fittings and mountings. The boiler and water tank are placed at the back of the base-plate to act as counterbalance, the driver standing in front of it, and care should be taken that the working levers are so placed that the driver can get a good view of the load when lifting or slewing. The boiler should be fitted and lagged or covered with a good non-conducting composition, such as "slag wool," and boxed in as far as may be to protect it from the winds and cold draughts, which are apt to cause leaky seams.

Slewing Gear.—In cranes of modern construction gearing is now provided enabling the crane to be slewed in either direction without reversing the engines. It is very important that this motion should come into action without shock, and be readily under the control of the driver. For this purpose double friction cone gearing is now generally employed. With the object also of preventing accidents from sudden stopping or starting, many manufacturers make the slewing roller path or ring loose and separate from the bed of the crane, and it is claimed for this arrangement that under ordinary conditions the pressure of the superstructure of the crane keeps it stationary when slewing; but should there be a suddenly applied shock, instead of breaking the gearing the loose path moves slightly on its seat till the power of the shock is spent. Another advantage of a loose path is that its wear can be equalised by moving it round, and it can be readily renewed when worn out.

Crane Jibs or Derricks.—These are usually made either of lattice steel or timber. Chiefly on account of the reduction in weight, the latter is largely employed for cranes to lift moderate weights erected at the top of high buildings. If timber is used, it need hardly be said it should be of the best possible quality, free from defects and thoroughly seasoned. Oak is usually employed for the mast and pitch pine for the derrick, spurs, and sleepers. They should be fitted with heads and shoes, and the head bolts be of ample strength. These latter should be carefully examined periodically, as when subjected to the weather dangerous decay may be going on in the wood and remain undetected. If considerable weight has to be lifted, the jib should be made double and firmly stayed and braced together, and the stays trussed to the sleepers. The diameter of the pulley sheaves and winding drum should in all cases be as large as may be convenient.

For lifting heavy weights a steel lattice-jib, with steel mast, is to be preferred to timber, which answers very well for moderate radius and weights, say two or three tons. A wind brake should be provided for holding the jib in any desired position.

Wire Ropes for Lifting.—After a lengthened experience, the writer can strongly recommend the use of special flexible steel wire ropes for lifting and hauling purposes in preference to chain, as being much safer and more convenient. It is very important, however, that the rope be exactly proportioned in size and strength to the maximum load it has to lift. If it is too small it is unsafe, and if too large, and it has to run quickly over sheaves and drums of small diameter, severe bending and other strains are at once set up, and it rapidly deteriorates. There is little doubt that the quality of the ropes is often blamed when the fault lies with the insufficient diameter of the sheaves and drum of the crane. It is now, I think, generally admitted that these should have a diameter not less than 25 to 30 times the diameter of the rope to secure the best results; in point of fact, within reasonable limits, the larger the better. Care should be taken that the rope is kept free from dirt and grit and should occasionally be thoroughly greased with a good lubricant such as black lead and tallow. Ropes may be changed without damage from a smaller to a larger drum, but not *vice versâ*. Ropes are often strained and damaged by suddenly starting and jerking the load; great care should therefore be exercised by the driver to secure a steady and even movement. Ropes should never be allowed to kink or strike against anything when at work or be allowed to get damp or rusty.

Owing to excessive competition numbers of ropes made of improper or inferior steel are on the market. For crane work best quality only should be used; these are manufactured from what is known as "extra plough steel" and made extra flexible. The breaking strain of these ropes—made of six strands with wire core, the centre core being of hemp—per square inch sectional area, is from 110 tons to 120 tons; but, owing to the varying nature of the steels employed, users would do well in all cases to require from the manufacturer a guarantee as regards breaking strains. The margin of safety or safe working load of round steel wire ropes should be one-seventh of the breaking load.

All ropes should be carefully examined and tested at intervals, as the constant bending of the rope over drum and sheaves sets up internal friction between the wire strands, which may become dangerous if worked long undetected. The less the diameter of the winding drum and sheaves the greater the friction; it therefore follows—as elsewhere remarked—that these should be of as large a diameter as possible.

Management of Crane Boilers.—Although vertical boilers are very useful in confined situations, the Boiler Insurance Company's returns show that, owing to their construction, they are more liable to deterioration and accidents than other types, consequently they should be very carefully managed and looked after. In the first place, the purest procurable feed-water should be used, and the boiler frequently cleaned, say, once a fortnight, if the feed-water is not good.

In boilers with an internally-fired cylindrical fire-box the water space between the box and shell is usually very confined, and somewhat difficult of access, and is especially liable to become furred up with incrustation; consequently the heat cannot be taken up rapidly by the water, and overheated fire-boxes and accidents from this cause are of frequent occurrence. It will pay well from an economical point of view to keep all boilers thoroughly clean; any incrustation, say, above $\frac{1}{16}$-in. thick should never be allowed to accumulate. Great care should be taken by the attendant in making the mudhole joints, as leakage from these is a fruitful cause of wasting of the plates; also if the boiler is out of use it should be thoroughly cleaned and dried and all ashes and soot removed. If out of use for some time, the fire-box and tubes should have a coat of anti-rust paint. Should slight leakage at any of the seams be discovered, they should immediately be carefully caulked. A frequent cause of deterioration in these boilers arises from overheating of the fire-box crown and chimney tube, especially if the firing of the boiler be forced. To protect the chimney tube, a cast-iron liner is now often fitted, with very satisfactory results.

Should the feed-water be bad, it should be purified before use. In conclusion, the boiler, engine, crane, and ropes should be periodically inspected by a competent engineer.

BY-LAWS AS TO DRAINAGE OF BUILDINGS.

AT the last meeting of the London County Council, the Public Health Committee brought up the following report, the recommendations being agreed to:—

"On March 21 last we submitted to the Council a series of drainage by-laws* proposed to be made under Section 202 of the Metropolis Management Act, 1855, and on the 2nd instant,† the Council considered them *seriatim*, and, having amended them in certain particulars, made by-laws number 1 to 7, and 9 to 22.

On By-law No. 8 an amendment was carried to add the following words to Sub-section (iv.), "or if the drains exceed 4 in. in internal diameter of a sectional area not less than that of a pipe of 4 in. internal diameter." The object of this amendment was to allow 4-in. ventilating pipes to ventilate drains of a larger diameter, and on the amendment being carried, By-law No. 8 was withdrawn in order that we might consider the most suitable words to give effect to the Council's wishes. We think that the best method of dealing with the matter would be to add to Sub-section (iv.) as brought up to the Council, a proviso in the following terms:—

> "provided always that such pipe or shaft, if it shall have an internal diameter of not less than 4 in., shall be deemed to provide adequate ventilation for any drain of a larger diameter."

We also wish to point out that By-laws Nos. 4 and 10, as amended by the Council, allow drains, and waste-pipes from lavatories and sinks, to be made of any metal. This, we think, is undesirable, as zinc or other pipes might be used, which might not be of proper weight and strength or might become oxidised and perish very rapidly. The alterations made in these by-laws were agreed to on the understanding that they were only consequential amendments to those made in certain other clauses, but as, on looking into the matter, we find they affect materially the meaning and intention of the by-laws, we hope the Council will allow the former words to be re-instated in the following paragraphs, viz., "cast iron" in place of "metal," in line 4 of paragraph 1 of By-law 4, and "lead, iron" in place of "metal," in lines 4 and 6 of paragraph 1 of By-law 10. Except for these slight alterations the by-laws will remain as made by the Council. In order to give effect to our wishes it will be necessary for the Council to repeal By-laws 4 and 10 and re-enact them altered as suggested.

The recommendations which we therefore make are—(*a*) That the Council do repeal Nos. 4 and 10 of the by-laws made by it on May 2, 1899, under Section 202 of the Metropolis Management Act, 1855. (*b*) That the Council do, pursuant to the provisions of Section 202 of the Metropolis Management Act, 1855, make by-laws numbered 4, 8, and 10 in the terms set out in the appendix to this report. (*c*) That the seal of the Council be affixed to by-laws numbered 4, 8, and 10 as set out in the appendix to this report, and to by-laws numbered 1 to 3, 5 to 7, 9, and 11 to 22, made by the Council on May 2, 1899, under Section 202 of the Metropolis Management Act, 1855."

* In our issue for April 1 we printed the series of proposed by-laws.—ED.

† See our issue for May 6.

APPENDIX.

4. *Materials, &c., for Drains.*—Except in the case of a drain constructed for the drainage of the subsoil of the site of a building, every person who shall erect a new building shall, in the construction of every drain of such building communicating with a sewer, use good sound pipes formed of glazed stoneware, or of cast iron, or of any other equally suitable material.

He shall not construct any such drain so as to pass under any building, except in any case where any other mode of construction may be impracticable.

Size of Drain.—He shall cause every such drain to be of adequate size, and, if constructed or adapted to be used for conveying sewage, to have an internal diameter of not less than four inches.

Drain to be Laid on Concrete; and Fall of Drain.—He shall also cause every such drain, whether or not constructed or adapted to be used for conveying sewage, to be laid on a bed of good concrete not less than 6 in. thick, and projecting on each side of the drain to an extent at least equal to the external diameter of the drain. He shall also cause such drain to be laid with a suitable fall.

Joints of Drain.—If he shall construct such drain of cast iron jointed with socket joints, he shall cause such joints to be not less than 2½ in. in depth, and to be made with molten lead properly caulked, and he shall also cause the annular space for the lead, in the case of 3-in. and 4-in. pipes, to be not less than ¼ in. in width, and in the case of 5-in. and 6-in. pipes, to be not less than ⅜ in. in width. If such drain be jointed with flange joints he shall cause such joints to be securely bolted together with some suitable insertion.

If he shall construct such drain of stoneware, or material other than metal, he shall cause such drain to be jointed with socket joints properly put together with cement or other equally suitable material.

Drain to be Water-tight.—He shall cause every such drain (other than a drain constructed for the drainage of the subsoil of the site of a building) to be so constructed as to be water-tight and to be capable of resisting a pressure of at least 2 ft. head of water.

Concrete to be Filled in.—He shall cause good concrete to be filled in so that it shall extend to the full width of the concrete bed already prescribed in this by-law, and so that such drain shall be embedded to the extent of not less than half its diameter.

Thickness and Weight of Iron Pipes.—If he shall construct any such drain of cast iron, the thickness and weight of the pipes in proportion to the diameter thereof shall be as follows :—

Internal Diameter. Inches.	Thickness of Metal, not less than	Weight per 9 ft. length (including socket and beaded spigot or flanges—the socket not to be less than ⅝ in. thick), not less than
3	5/16 in.	110 lbs.
4	5/16 in.	160 lbs.
5	5/16 in.	190 lbs.
6	5/16 in.	230 lbs.

Thickness, Sockets, and Joints of Stoneware Pipes.—If he shall construct any such drain of stoneware or material other than metal, the thickness of the pipes, and depths of the sockets, and the annular space for the cement in proportion to the diameter shall be as follows :—

Internal diameter, inches.	Thickness of pipe, not less than	Depth of socket, not less than, inches.	Annular space for the cement, not less than
3	½ in.	1¼	5/16 in.
4	⅝ in.	1¾	5/16 in.
5	⅝ in.	2	5/16 in.
6	⅝ in.	2	5/16 in.
9	¾ in.	2	7/16 in.

Drains under Buildings.—Where any such drain (other than a drain constructed for the drainage of the subsoil of the site of a building) passes under a building, he shall cause such part thereof as passes under the building to be laid, where practicable, in a direct line for the whole distance beneath such building, and to be completely embedded in and covered with good and solid concrete at least 6 in. thick all round.

Provided that in any case where such drain shall be constructed of iron, he shall not be required to cover such drain with concrete, but unless it be carried above ground and also be carried at least at each joint on adequate piers or other sufficient supports, constructed of iron, stone, brick, or cement concrete, it shall be laid on a bed of good concrete in accordance with the requirements of this by-law relating to drains which do not pass under a building.

He shall, whenever practicable, cause adequate means of access to such drain to be provided at each end of such portion thereof as is beneath such building.

Composition of Concrete.—He shall cause all concrete used in connexion with any such drain, whether under a building or not, to be composed of clean gravel, hard brick broken small, or other suitable ballast, well mixed with clean sand and good Portland cement in the proportion of one part of sand, one part of cement, and five parts of other material, or with clean sand and good blue lias lime in the proportion of one part of sand, one part of lime, and four parts of other material.

Inlets to Drains to be Trapped.—He shall cause every inlet to every such drain, not being an inlet provided in pursuance of the by-law in that behalf as an opening for the ventilation of such drain, to be properly trapped by an efficient trap so constructed as to be capable of maintaining a sufficient water seal. He shall not construct or fix in or in connexion with any such drain, any trap of the kind known as a bell-trap, a dip-trap, or a D-trap.

Protection of Drain beneath Wall.—He shall, in every case where any such drain is laid beneath a wall, cause such drain to be protected at the part beneath the wall by means of an arch, flagstone, or iron support, which shall not bear on the drain and shall be of sufficient size and strength to prevent any disturbance of or other injury to such drain.

8. *Ventilation of Drains.*—Every person who shall erect a new building shall, for the purpose of securing efficient ventilation of the drains of such building communicating with a sewer, comply with the following requirements :—

(*i.*) He shall provide at least two untrapped openings to the drains, and in the provision of such openings he shall adopt such of the arrangements hereinafter specified as the circumstances of the case may render the more suitable and effectual.

Alternative Arrangements.—(*a*) One opening being above and near the level of the surface of the ground adjoining such opening, shall communicate with the drains by means of a suitable pipe, shaft, or chamber, and shall be situated as near as may be practicable to the trap which, in pursuance of the by-law in that behalf, shall be provided between the main drain or other drain of the building and the sewer. The point at which such opening communicates with the drain shall also in every case be situated on that side of the trap which is the nearer to the building.

The second opening shall be obtained by carrying up from a point in the drains, as far distant as may be practicable from the point at which the first-mentioned opening shall be situated, a pipe or shaft, vertically, to such a height and in such a position as to afford by means of the open end of such pipe or shaft a safe outlet for foul air.

(*b*) In every case where the foregoing arrangement of the openings to the drains may be impracticable or undesirable, there may be substituted the arrangement hereinafter prescribed.

One opening shall be obtained by carrying up from a point, as near as may be practicable to the trap, which, in pursuance of the by-law in that behalf, shall be provided between the main drain or other drain of the building and the sewer, a pipe or shaft, vertically, to such a height and in such a position as to afford, by means of the open end of such pipe, a safe outlet for foul air. The point at which such opening communicates with the drain shall also in every case be situated on that side of the trap which is the nearer to the building.

The second opening, being at a point in the drains as far distant as may be practicable from the point at which such last-mentioned pipe or shaft shall be carried up, shall be above and near the level of the surface of the ground adjoining such opening, and shall communicate with the drains by means of a suitable pipe or shaft.

(*c*) If in any case neither of the two preceding arrangements are desirable, then both the first and second openings may be obtained by carrying up from the points referred to in the previous subsection suitable vertical pipes or shafts to such heights and in such positions that when either acts as an inlet the other may be a safe outlet for foul air.

Gratings or Covers to Openings.—(ii.) He shall cause every opening provided in accordance with any of the arrangements herein before specified to be furnished with a suitable grating or other suitable cover for the purpose of preventing any obstruction in or injury to any pipe or drain by the introduction of any substance through any such opening. He shall, in every case, cause such grating or cover to be so constructed and fitted as to secure the free passage of air through such grating or cover by means of a sufficient number of apertures, of which the aggregate extent shall be not less than the sectional area of the pipe or drain to which such grating or cover may be fitted.

No Bends or Angles in Pipes.—(iii.) He shall not, except where unavoidable, cause any bend or angle to be made in any pipe or shaft used in connexion with any of the arrangements hereinbefore specified.

Size of Pipes.—(iv.) He shall cause every pipe or shaft which may be used in connexion with any of the arrangements hereinbefore specified to be of a sectional area not less than that of the drain with which such pipe or shaft may communicate; provided always that such pipe or shaft, if it shall have an internal diameter of not less than 4 in., shall be deemed to provide adequate ventilation for any drain of a larger diameter.

Construction, Material and Weight of Pipes.—(v.) He shall cause every pipe or shaft used in connexion with any of the arrangements hereinbefore specified to be constructed in the same manner and of the same material and weight as if such pipe or shaft were a soil pipe.

Use of Soil Pipes as Ventilating Pipes.—(vi.) Provided always, that for the purpose of any of the arrangements hereinbefore specified the soil pipe of any water-closet, or the waste pipe of any slop sink constructed or adapted to be used for receiving any solid or liquid excremental filth, in every case where the situation, sectional area, height and mode of construction of such soil pipe or such waste pipe shall be in accordance with the requirements applicable to the pipe or shaft to be carried up from the drains, shall be deemed to provide the necessary opening for ventilation which would otherwise be obtained by means of such last-mentioned pipe or shaft.

Provided also that any such soil pipe or waste pipe shall, where such soil pipe or waste pipe shall have an internal diameter of not less than 3½ in., and shall in all other respects comply with the requirements as to the position, height, and mode of construction of the pipe or shaft to be provided for the ventilation of any drain, be deemed to provide adequate ventilation for any drain having an internal diameter of not more than 4 in.

10. *Material of Waste-pipes. Traps to Waste-pipes.*—A person who shall erect a new building shall cause every pipe in such building for carrying off waste water from every lavatory or sink (not being a slop sink or urinal constructed or adapted to be used for receiving any solid or liquid excremental filth) to a sewer, to be constructed of lead, iron, or stoneware, and to be trapped immediately beneath such lavatory or sink by an efficient siphon trap, which shall be constructed of lead, iron, or stoneware, with adequate means for inspection and cleansing, and which shall be ventilated into the external air whenever such ventilation may be necessary to preserve the seal of such trap.

He shall not construct or fix in or in connexion with such waste pipe, lavatory, or sink, any trap of the kind known as a bell-trap, a dip-trap, or a D-trap.

Waste Pipes to Discharge in the Open Air.—He shall cause every pipe in such building for carrying off waste water to a sewer to be taken through an external wall of such building, and to discharge in the open air over a properly-trapped gully or into such a gully above the level of the water in the trap thereof, or over a channel leading to such a gully."

CONGRESS OF FRENCH ARCHITECTS.

As already mentioned, the annual Congress of French architects will be held from June 18 to 24, at Tours for the sittings of sections and the usual visits, and at Paris for the distribution of awards and the final dinner. The following is the main scheme of the programme :—

Sunday, June 18.—Excursions to Langeais, Rigny, Les Islettes, and Azay-le-Rideau.

Monday, June 19.—Two meetings of sections to discuss, respectively, the law of April 9, 1898, on the responsibility for accidents on building work, and the subject of industrial art in the provinces. Visits in Tours, and dinner at Saint-Avertin.

Tuesday, June 20.—Excursion to Loches and departure for Poitiers.

Wednesday, June 21.—Visits to the curiosities of Poitiers: Notre Dame la Grande, Palais de Justice, Tour Saint-Porchaire, Lycée, Church of St. Hilaire, Gardens of Blossac, ramparts, temple of St. Jean, cathedral, Ste. Radegonde, walk along the river to Montierneux. Departure for Augoulême.

Thursday, June 22.—Visits in Augoulême: the Hôtel de Ville (a remarkable work by Abadie), the Theatre, the Carnot monument (by Henri Deglane and R. Verlet), the ramparts, the cathedral (restored by Abadie), St. Auzonne, the public gardens, Beaulieu, various interesting old houses, the chapel of the Lycée, the Prefecture, &c. In the evening, departure for Paris.

Friday, June 23.—General meeting of the Caisse de Defence Mutuelle, and visit to the works for the 1900 Exhibition.

Saturday, June 24.—Distribution of awards in the Hemicycle des Beaux Arts, and annual dinner.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—This Association met at the rooms in Sackville-street on the 17th inst., Mr. Compton, V.P., in the chair. Mr. Patrick, hon. sec., announced that the Marquess of Granby had accepted the office of President of the Congress and the Association for the ensuing twelve months. Two very interesting rubbings of incised designs on the headstone of the piscina in the south wall of the Templar's Chapel at Garway, Ross-on-Wye, were contributed by the Rev. Dr. Minos, the Vicar of Garway. They were discovered late last year on removing plaster. On the left side of the piscina is a fish, representing the baptised, and on the right a horned adder, representing the unbaptised. In the middle is a cup marked with a triangle, and raised a little above the top is a cross within a circle; the cup has two wings. Dr. Minos considers this to be emblematical of the exaltation of the consecrated wafer. The second rubbing was of incised work on the inside face of the broken tympanum of the west door of the Templar's Chapel; on the left

side is a spear, and near it a ladder; on the right a cup with a cover, and near it a reed and a sponge. In the middle is a TAU cross with a crown over it, three nails and a sword beneath the arms. These clearly represent the instruments of the Passion and the Crown of Glory. The work is rude in character and of early date, probably pre-Norman. Mrs. Collier exhibited a rare volume of the early part of the seventeenth century, entitled "A History of the Gospel," in fine condition, and Mr. Grimsdale photographs of a pair of hand mill-stones recently dug up in a brickfield near Uxbridge. The stones are 14 in. in diameter and were found under about 4 ft. 6 in. of brick earth. A paper contributed by Dr. Russell Forbes on "The Cremating of Cæsar" and the recent "Discoveries in the Forum at Rome" was read, in the author's absence, by Mr. Patrick, hon. sec.

Illustrations.

THE NEW BUILDINGS FOR SOUTH KENSINGTON MUSEUM.

WE give this week the view of the new façade for the South Kensington Museum, as remodelled by Mr. Webb, and the ground plan, to a larger scale than has yet appeared. We may refer the reader to our remarks on the whole scheme in the second article of our last week's issue; in the course of which we observed that the large-scale plan, now given, would render more clear the modifications made from the original plan, owing to the lines of the site, and the reasons for them.

LIVERPOOL MUSEUM.

THIS drawing, which is exhibited at the Royal Academy, represents the west elevation, towards Byrom-street. The three lower rows of windows light the technical schools. Above them are two floors of museum galleries, the upper of which is top lighted.

The work is being executed in an extremely hard sandstone, known as Stancliffe stone, said to be the same as that of which the St. George's Hall is built. Mr. Pomeroy is doing all the sculpture.

The plans of the building were given when we published the competition drawings, under date August 8, 1896.

CHARD CHURCH, SOMERSET.

OUR illustration shows the south-east view of the proposed enlargement of the parish church at Chard, Somerset. At present the church consists of a spacious nave with aisles, transepts, and a very short chancel. To meet the required increased accommodation, it is proposed to double the transepts and lengthen the chancel. The architect is Mr. Roland W. Paul, of London. The drawing is exhibited at the Royal Academy.

SCREENS, ABBEY DORE CHURCH, HEREFORD.

THE two screens enclose one of the chapels of the south transept of the Abbey Church, now known as the Hoskyns Chapel. The family vault is below the pavement, and over it stands the monument of Sergeant Hoskyns, *temp.* Elizabeth, on the sides of which are some elaborate inscriptions and heraldry. The screens are of oak, and on the cornice of the front screen are the date of its erection, the initials of the donor, and the arms of the Hoskyns family. The screens were designed by Mr. Roland W. Paul, of London, and executed by Messrs. Yandle & Sons, of Martock. The shield of arms and its decoration was carried out by Mr. Thomas Martin, of Kennington-road. The drawing is exhibited at the Royal Academy.

LYCH GATE, WOOTTON FITZPAINE, DORSET.

THE lych gate forms the entrance to a new cemetery recently made a short distance from the church, the churchyard having been closed for burials. The materials are oak and Ham Hill stone, and old Ham stone slates have been used for the roof. The work has been carried out by Messrs. Yandle & Sons, of Martock, from the designs of the architect, Mr. Roland W. Paul. The drawing is exhibited at the Royal Academy.

REGULATIONS AND STANDING ORDERS UNDER THE LONDON BUILDING ACT, 1894.

AT the last meeting of the London County Council, the General Purposes Committee brought up the following report, the recommendations being agreed to without discussion:—

"The Building Act Committee have informed us that they consider it expedient that the regulations and standing orders under the London Building Act, 1894, should be revised, in view of the passing of the London Building Act, 1894 (Amendment) Act, 1898, and of the recent decision of the Council to reprint and issue in book form the Council's edition of the London Building Act, and the by-laws in force relative to buildings. The Building Act Committee have carefully gone through the existing regulations and standing orders, and the alterations and additions which they propose are those which their four years' experience of the working of the London Building Act, 1894, lead them to think desirable and necessary.

The new regulations deal chiefly with matters of detail and office routine, and closely follow the existing regulations, but the Building Act Committee deem it expedient that the regulations should be made more stringent in some matters, notably in the case of street formation, with regard to which many difficulties have in practice arisen. With the view, if possible, of preventing similar difficulties arising in future, the Committee propose that the following clause should be added to the regulations under this head—

'Every application for sanction to the formation or laying out of any street, or for the adaptation of any way as a street, must be accompanied by correct and sufficient particulars in writing (which must be verified by production of title deeds should the Council so require) showing how the person on whose behalf the application is made has acquired such control over the land forming the site of the proposed street shown on the plan accompanying his application, as may be requisite to enable him to form or lay out such street, or to adapt such way as the case may be. Such particulars must contain the date of, and the names and addresses of the parties to, the document or documents under which the applicant acquired such control.'

As the regulations are of the nature of standing orders, the Building Act Committee have thought it more convenient that they should be submitted with and at the same time as the revised standing orders.

The present standing orders were framed on the lines of the orders in force under the Building Act of 1855 before experience had been gained of the working of the London Building Act of 1894. The policy of the latter Act is to impose penalties for building, &c., contrary to conditions. Conditions must accordingly be framed in such a way as to enable them to form a basis for proceedings if deviations are made from the schemes approved by the Council. The old conditions rather aimed at making the Council's sanction void if deviations were made, but practice has shown that such deviations might be made at a period when it was too late to take proceedings for building without consent, even if the consent given by the Council were declared void. The Building Act Committee inform us that they have therefore especially framed the new conditions with a view of making proceedings possible at any time when a deviation occurs, and having regard to cases which have arisen in which, owing to some technicality in the wording of the present conditions, the Council has been unable to secure compliance with the plans sanctioned. It may be particularly noted as regards street formation that the evils the Committee have specially had in view and have endeavoured to meet are persons commencing in accordance with sanctioned plans and then stopping and leaving a *cul de sac* instead of completing the street as shown on the plan, or commencing properly and then continuing improperly. The Building Act Committee add that the conditions proposed have been to some extent tried in practice with good results, and the Committee have been able to recommend the Council to sanction schemes subject to such conditions, when, in the usual course, they would have been obliged to recommend the Council to refuse its consent.

Slight alterations have been made in the latter part of standing order No. 238 relative to the fees to be paid to district surveyors in accordance with Section 155 of the London Building Act in the direction of making clearer to the district surveyors the services required of them under the section of the Act referred to, but the amount of the fees remain as at present.

It is not proposed that the new regulations and standing orders (which are set out in the appendix to this report) shall come into force until October 1 next; and until that date, therefore, the existing regulations and standing orders will remain in force.

We agree with the proposals of the Building Act Committee and accordingly recommend:—'That the Council do make regulations and standing orders in the terms set out in the appendix to this report, under the London Building Act, 1894, and the London Building Act, 1894 (Amendment) Act, 1898, and that such regulations and standing orders do come into force on and after October 1, 1899, and be then substituted for the existing standing orders, Nos. 217 to 238.'

APPENDIX.

Regulations and Rules as to applications for Sanction, Consent, and Licences, &c., under the London Building Act, 1894, and the London Building Act, 1894 (Amendment) Act, 1898.

The attention of applicants is specially directed to the provisions of Section 194 of the London Building Act, 1894, whereby all applications, plans, and other documents delivered at the office of the Council, on delivery there become the property of the Council.

I.—General.

Every application (except those under Part XI. of the Act of 1894, as to which see paragraph II. (14) below) must be addressed to the Superintending Architect, County Hall, Spring-gardens, S.W., and must state under which section of the Acts it is made.

All applications must be in writing on foolscap paper, and all drawings (including plans, sections, and elevations) must be on tracing linen of sufficient size to permit of the approval of the Council being endorsed thereon.

The scale to which drawings are made must be drawn thereon and not expressed in words; the north point must be indicated on all plans.

The site must be coloured pink, the proposed building red, existing buildings grey, and any land to be dedicated and left open for the use of the public blue.

The full name and address of the person on whose behalf the application is made and the extent and character of his interest in the property, and whether the property is freehold, leasehold, or copyhold, must be stated. Particulars must be furnished as to the nature of the application and the situation of the street, building, or structure, and the purpose for which such building is required.

All drawings must be in duplicate, and be drawn on the unglazed side of the tracing linen.

II.—Plans, Sections, and Particulars Required in Each Case. (1) *Formation and Laying Out of New Streets—Adaptation of Ways for Streets and Widenings of Streets (see also 13 below), &c., Sec. 7 and Sec. 10 of the 1894 Act.*

Plans must be to a scale of 88 ft. to the inch, and must be accompanied by longitudinal sections to the same horizontal scale, but to a verticle scale of 11 ft. to the inch, showing the natural and intended surface levels of the streets (computed from ordnance or some other fixed datum), and by cross sections to a scale of 22 ft. to the inch.

The width of the new street must also be figured.

A key-plan of the locality, showing the surrounding property, must also be sent.

The names proposed to be given to the streets must be submitted; they must be such as are not already in use. An office list of names in use, together with a list of available names, can be consulted by applicants.

In the event of the application being sanctioned, two additional copies of the plans will be required.

In the case of the adaptation of ways for streets or the widening of streets under Section 10, sections will not be required.

Every application for sanction to the formation or laying out of any street or for the adaptation of any way as a street, must be accompanied by correct and sufficient particulars in writing (which must be verified by production of title deeds should the Council so require) showing how the person on whose behalf the application is made has acquired such control over the land forming the site of the proposed street shown on the plan accompanying his application, as may be requisite to enable him to form or lay out such street, or to adapt such way as the case may be. Such particulars must contain the date of, and the names and addresses of the parties to, the document or documents under which the applicant acquired such control.

(2) *Buildings (a) within the Prescribed Distance (b) in Advance of the General Line of Buildings, &c., Sec. 13, Sec. 17, and Sec. 22 of the 1894 Act, and Secs. 3 and 4 of the 1898 Act.*

Plans must be to a scale of 22 feet to the inch

and must show the situation of the building in relation to others adjacent. The height and precise distance from the centre of the roadway of the proposed building and the width of the street are to be figured.

The names and addresses of the owners and occupiers of the nearest building on each side of the proposed building must also be sent.

In the event of an application being approved, an additional copy of the drawings will be required.

In the case of applications under Sec. 13 (5), the extent and height of the old buildings on the site must be shown to the same scale.

(3) *Open Space at the Rear of Domestic Buildings, Sec. 41; and Open Space about Working Class Dwellings not Abutting upon a Street, Sec. 42 of the 1894 Act and Sec. 4 of the 1898 Act.*

Plans and sections must be to the scale of one-eighth of an inch to the foot; they must indicate the height of the proposed buildings in every part; there must also be a block plan to a scale of 22 ft. to 1 in., showing the adjoining premises, with the approximate height of any buildings thereon, and in any case where it is desired to extend a building or any part thereof above the diagonal line directed to be drawn by the Act of 1894, the diagonal line and also the horizontal line from which it is drawn must be shown on such drawings.

(4) *Deviations from Certified Plans of Domestic Buildings Previously Existing on Old Sites, Sec. 43 of the 1894 Act.*

Plans and sections to a scale of one-eighth of an inch to a foot, showing the height and extent of the previously existing buildings, and certified by the district surveyor, must be sent, together with plans and sections of the proposed new buildings to the same scale. The position and approximate height of any adjacent buildings must be indicated on a block plan to a scale of 22 ft. to 1 in. The area of open space to be left and the height of new buildings must be figured.

(5) *Laying Out New Streets on a Cleared Area, Sec. 44 of the 1894 Act.*

In all cases where the proposed new streets have been sanctioned but not formed the date of such sanction must be specified in any application submitted under Section 44, and every such application must be accompanied by a block plan to a scale of 44 ft. to 1 in., showing the width of all old streets on the area, and the extent and approximate height of all old buildings thereon, together with sections to a scale of one-eighth of an inch to the foot, showing the height of the proposed new buildings.

In any case where sanction has not been obtained to the formation or laying out of proposed new streets upon a cleared area, application for sanction to such streets must be made in accordance with Regulation II. (1), and should accompany any application made under Section 44.

Applications cannot be entertained under Section 44 for modification or relaxation of the previous provisions of Part V., except in respect of either existing streets or streets for the formation of which a sanction has been obtained under Part II. of the 1894 Act.

(6) *Height of Buildings, Sec. 47 and Sec. 49 of the 1894 Act.*

A block plan to a scale of 22 ft. to an inch, showing the position of the proposed building and of any adjacent buildings, and the width of the street.

Also a plan and sections to a scale of one-eighth of an inch to the foot, showing the height of the several parts of the building.

(7) *Recesses and Openings in External Walls and Recesses in Party Walls, Sec. 54 of the 1894 Act.*

A block plan to a scale of 22 ft. to an inch, showing the position of the building and of adjacent buildings.

Plans of the floors of the building and an elevation of the wall in which the recesses or openings occur to a scale of one inch to the foot.

(8) *Timber in External Walls, Sec. 55; and Furnace Chimney Shafts, Sec. 65 of the 1894 Act.*

Plans, sections, and elevations to the scale of one-eighth of an inch to a foot, together with such details to a larger scale as may be necessary to show the construction.

A block plan to a scale of 22 ft. to the inch, showing the position of the building.

(9) *Means of Escape from the Upper Stories of High Buildings, Sec. 63 of the 1894 Act.*

A block plan to a scale of 22 ft. to an inch, showing the position of the building and of adjoining buildings.

Plans of the floors above 60 ft. from the street level to a scale of one-eighth of an inch to the foot, and full details of the means of escape to be provided.

(10) *Projections, Sec. 73 of the 1894 Act.*

In addition to the drawings, &c., required by Regulation II. (2), a plan, section, and side elevation to a scale of one-eighth of an inch to a foot. In the case of the application being approved an additional copy of the drawings will be required.

(11) *Additional Cubical Extent, Sec. 76; and Buildings for the Supply of Electricity, Sec. 203 of the 1894 Act.*

A block plan to a scale of 22 ft. to the inch, showing the position of the proposed building and buildings adjacent.

Plans and sections to a scale of $\frac{1}{8}$ in. to the foot, showing the height of the building in its various parts.

The use to which the various parts of the building are intended to be put is to be indicated, and any points bearing upon the question of liability to fire.

(12) *Special and Temporary Buildings and Wooden Structures. Part VII. of the 1894 Act and Sec. 6 and 7 of the 1898 Act.*

Applications must be accompanied by a block plan of the premises, showing the position of the proposed building or structure, and of any adjacent buildings or structures, and also by a plan, elevation, and section of the proposed building or structure to a scale of one-eighth of an inch to a foot, together with such sections and details to a scale sufficiently large to clearly show the construction.

A fee of 5s. must be paid to the cashier of the Council on depositing the application, and a further fee of 5s. on obtaining a notification of the order of the Council, and in no case will the approval or licence be issued until the fees are paid.

Every application for a renewal of an approval or licence for a temporary building or structure for a further period must be accompanied by a certificate from the district surveyor that it has not been altered as to construction or position, and in cases where the building or structure has existed for three years or more, as to its stability for such further period as may be applied for, and also as to any repairs which may be requisite.

In cases where the building or structure has existed for less than three years, and if the inspection be merely to ascertain that the building has not been altered as to construction or position, and to certify that an extension of time may be allowed, a fee of 10s. may be demanded and received by the district surveyor.

In cases where the building or structure has existed for three years or more, and a certificate with regard to structural stability is required, a fee of 20s. may be demanded and received by the district surveyor.

(13) *Naming of Streets and Numbering of Houses. Part IV. of the 1894 Act.*

Persons laying out new streets or building rows of houses would facilitate their own operations with reference to leases and the numbering of houses required by the Council under the statute by observing the following rules—

St. Paul's Cathedral is recognised as a central point; and the numbering of houses begins at the end or entrance of the street nearest to that building, except where a street leads from a main thoroughfare to a less important street, and then the numbering must start from the main thoroughfare.

Taking, therefore, the sides of a street as left and right (assuming that the back is towards St. Paul's) the odd numbers will be assigned to the left hand side, and the even numbers to the right hand side.

No name is to be used for a street unless with the approval of the Council; and it must be a name consisting, if possible, of one word, with the addition of "street," "road," or other like term, and not already in use within the county.

Only such streets as are leading thoroughfares of considerable length can be designated "roads."

No street under 50 ft. in width can be called an "avenue."

The names "gardens" and "grove" can only be used when the terms seem appropriate.

Names in some way associated with the locality are preferred.

Names for terraces or places, or other blocks of houses, and sections of streets, usually known as subsidiary names, are not recognised.

Any person interested in property affected by any order of the Council for re-naming streets or re-numbering houses, is permitted, on application, to make a copy of the order and a tracing of the plan attached thereto; or a certified copy of the order and plan may be furnished to him on his paying the cost of making the same.

A fee of 1s. is to be charged to all persons seeking information involving a reference to the records with regard to orders for re-naming streets or re-numbering houses.

If a copy of an order and plan be required, there will be a further fee of not less than 1s. 6d.

A more extended plan may be obtained for a larger payment.

Copies of orders and plans are to be made in the superintending architect's department.

(14) *Dwelling-houses on Low-lying Lands. Part XI. (These Regulations were made by the Council on March 26, 1895, under Section 123 of the London Building Act, 1894, and the Concurrence of the Tribunal of Appeal was duly signified thereto on April 8, 1895).*

Every person who shall be desirous of erecting or adapting any building to be used wholly or in part as a dwelling-house on any land in the county of London, of which the surface is below the level of Trinity high-water mark, and which is so situate as not to admit of being drained by gravitation into an existing sewer of the Council, shall first make a written application for a licence. Such application shall be addressed to the Clerk of the Council.

Such application shall contain a statement as to the nature and extent of the interest of the applicant in the building or buildings proposed to be erected or adapted, and be accompanied by a plan and section of the lowest floor of such building or buildings and the curtilages thereof to a scale of $\frac{1}{8}$th of an inch to a foot, and by a block plan to a scale of not less than $\frac{1}{1250}$ (which may be on a sheet or sheets of the Ordnance Survey, or may be drawn on tracing linen), showing the position of such building or buildings, and the local sewer into which it is proposed to drain such building or buildings, and the connexion of such local sewer with an existing sewer of the Council.

Such plans and sections shall be accompanied by a description of the materials to be used in the construction of such building or buildings, and shall be coloured in accordance therewith. The points of the compass shall be marked on the block plan.

The position and course of the drainage system proposed to be adopted for the disposal of sewage and rain water, and its connexion with the local sewer or an existing sewer of the Council, shall be clearly shown on the plans and sections, and the diameter and inclination of the drain-pipes shall be figured thereon.

The plan and section shall also indicate in figures the level above or below ordnance datum at which it is proposed to construct the floor of the lowest rooms.

The decision given by the Chief Engineer of the Council upon such application shall be reported to the Building Act Committee, and the Committee shall report it to the Council, and thereupon, if it is to the effect that the erection or adaptation may not be permitted, the Clerk of the Council shall by letter inform the applicant that the Council, acting upon the decision of the Engineer, has refused permission. If it is to the effect that the erection or adaptation may be permitted, a licence under the seal of the Council embodying the conditions of the Engineer's decision shall be issued to the applicant.

Regulation made by the Council on March 26, 1895, under Section 122.

It shall not be lawful to place the underside of the lowest floor of any permitted building at such a level as will render it liable to flooding, and every permitted building shall be efficiently and properly drained to the satisfaction of the Engineer for the time being of the Council either into a local sewer or into a main sewer of the Council.

(15) *Fire-resisting Materials. Schedule II. of the London Building Act, 1894—The Council on March 28, 1899, passed the following Resolution:—*

That the Council do, in pursuance of the powers vested in it by the second schedule of the London Building Act, 1894, approve of the following material as fire-resisting—namely, concrete composed of properly burned coke breeze, free from dust and organic impurities, and Portland cement, in the following proportions, viz., five parts by measurement of coke breeze to one part by measurement of Portland cement, mixed together with clean water to the satisfaction of the district surveyor, when such concrete is used for filling in between the joists of floors, and is filled in to the depth of at least five inches.

STANDING ORDERS.

Conditions upon which Applications may be Granted.

In dealing with applications made under the London Building Act, 1894, and the Amending Act of 1898, with reference to the under-mentioned matters, the desirableness of imposing conditions to the following effect shall be considered, but this order shall not limit any power to vary such conditions or to impose such conditions in other matters than those mentioned or to impose any other conditions in any matter.

In the matter of the formation or laying out of proposed streets, conditions to the following effect:—

(1.) That within from the date of this order the roadway of the proposed street hereby sanctioned shall be clearly defined throughout by posts and rails or so otherwise as the Council shall permit, and be thrown open to the public as a highway.

(2.) That no building shall be commenced to be erected upon either side of such roadway, or upon a site abutting upon such roadway, unless such roadway shall have been and shall still remain so defined and thrown open as aforesaid, and unless such road-

way shall have been and shall still remain so made as regards levels, direction, width, and gradients throughout as to comply with the provisions of any statutes and by-laws in force in London regulating streets and buildings, and unless such roadway shall also have been so made and shall still remain as to accord with the plans and sections attached hereto and the particulars which accompanied the application for the sanction contained in this order, and unless the name of the street approved by the Council shall have been affixed and be retained at both ends of the street.

In the matter of the erection of one-story shops in advance of the general line of buildings, a condition to the following effect:—

That no part of the proposed shop, or any structure or erection connected therewith, do exceed 16 ft. in height above the footway, or such other height as may be fixed by the Council.

In the matter of temporary buildings or structures, or wooden structures dealt with under Part VII., conditions to the following effect:—

(1.) That the building or structure be commenced and completed within such periods as may be deemed expedient.

(2.) That if the building or structure be commenced or completed contrary to Condition 1, or be found at any time to have been so erected, set up, altered, or adapted, as not to be in all respects in accordance with the application for the approval or licence and the plans and particulars relating to such application, or (when approved or licensed for a special purpose) to have been used for any purpose other than a purpose named in the approval or licence, or to have had any unauthorised addition made thereto, or any word, advertisement, or device made or retained thereon, such building or structure shall, within seven days after service on any owner or occupier thereof for the time being of a notice from the Council requiring its removal, be entirely removed.

In any matter in which land is to be given up conditions to the following effect:—

(1.) That before the building is erected or within such period as may be named in the sanction, consent, licence, or approval, the land coloured blue upon the deposited plan shall be dedicated to and left open for the use of the public, and that no pier, pilaster, or other projection be placed on such land.

(2.) That no vault, arch, cellar, or other construction shall be made in or under the said land coloured blue on the said plan without the previous consent in writing of the Local Authority.

And in all matters conditions to the following effect:—

That the building, structure, or work be set up, erected, or carried out, as the case may be, and retained without any addition thereto and in exact accordance with the application for the sanction, consent, licence, or approval, and the plans and particulars which accompanied such application.

No sanction, consent, licence, or approval shall be issued until the conditions imposed by the Council in granting the same have been, if the Council so require, accepted in writing by such persons as the Council shall consider the proper parties to comply with such conditions.

Every written acceptance of conditions shall have a sixpenny stamp affixed thereto.

DIRECTIONS TO BE OBSERVED BY THE COUNCIL'S OFFICIALS IN REGARD TO CERTAIN APPLICATIONS.

Formation and Widening of Streets—Part II. of the 1894 Act.

A copy of each plan for the formation of a new street, or for the adaptation of a way for a street, or for the erection of a building or structure at less than the prescribed distance from the centre of the roadway, is to be sent to the Local Authority in whose district the proposed street, building, or structure is situated, with a request that they will inform the Council within fourteen days whether they have any suggestions to make with reference to such plan, and with an intimation in cases of proposed erection at less than the prescribed distance from the centre of the road, that the communication is to be treated as the Council's communication within the meaning of Section 13 of the 1894 Act of its intention to give the consent applied for if upon consideration of the application it should think it ought to be granted.

Whenever the Council has approved of a plan for the formation of a street to be laid out for carriage traffic, and open at both ends, the applicant is to be cautioned that if at any time, without the written consent of the Council, any posts or other obstructions are placed across the carriageway to prevent the access of carriages, he will be liable to prosecution under Section 199 of the 1894 Act.

Whenever plans of new streets to be laid out for foot traffic only are sanctioned, a condition is to be attached binding the applicant to pave the street over the entire surface, and by posts, bars or otherwise, to prevent such street from being used for carriage traffic.

Lines of Building Frontage—Part III. of the 1894 Act.

On the receipt of an application to erect or extend buildings or structures beyond the general line of buildings, the fact of such application, together with copies or tracings of so much of the drawings accompanying the application as may be sufficient for identifying the property proposed to be dealt with, and explaining the object of the application, is to be communicated to the Local Authority of the district in which the site is situated; and the Local Authority is to be apprised that the Council will be prepared to receive any suggestions they may deem it desirable to make upon the subject within fourteen days; also, a notice that such application has been made, shall be sent to the owner and occupier of the nearest building on each side of the proposed building or structure; and no such application shall be brought before the Committee until after the expiration of fourteen days from the date of such notice.

Naming and Numbering of Streets—Part IV. of the 1894 Act.

Whenever application is made for the re-naming of a street, or the re-numbering of houses, the Local Authority in whose jurisdiction the same may be situated is to be asked to state its views on the subject.

In cases of re-naming of streets, the decision of the Committee shall be reported to the Local Authority, and notice boards shall be attached to two or more lamp-posts in the street for the period of one month, notifying the intention of the Council. At the expiration of the time any protests that may have been received shall be reported to the Committee.

When an order has been made by the Council for re-naming a street or re-numbering houses, an officer responsible to the Superintending Architect is, at the expiration of three months from the transmission of the order to the Local Authority, to inspect the street in respect of which the order has been made, and to report to the Committee any non-compliance with the terms thereof.

Immediately after the making of an order for the re-naming of any street, an intimation thereof is to be sent to the Post Office authorities.

Construction of Buildings—Part VI. of the 1894 Act.

Applications for projections under Section 73 of the 1894 Act are, where such projections extend into the street, to be treated in the same way as applications under Part III. of the 1894 Act.

Special and Temporary Buildings and Wooden Structures—Part VII. of the 1894 Act, and Sections 6 and 7 of the 1898 Act.

A register is to be kept by the Superintending Architect, showing the periods for which temporary buildings or structures or wooden structures are licensed by the Council, and whenever a building or structure is not removed at the expiration of the term specified in the licence, he is to report the fact to the solicitor, who is forthwith to write and caution the holder of the licence, and report the result to the Committee.

Dangerous and Neglected Structures.—Part IX. of the 1894 Act. Dangerous Structures.

When information of a dangerous structure is received, an order to survey shall be immediately sent to the district surveyor in whose district the structure is situated. District surveyors are not to certify unless required to do so, except in cases of imminent danger to life, not admitting of the least delay; all such very exceptional cases are to be specially notified to the Comptroller by the Superintending Architect.

A daily extract of fires, where structural damage has probably resulted, is to be made in the dangerous structures department from the fire brigade return, and the extract is to be forwarded to those district surveyors in whose districts the fires have occurred, in order that they may visit the premises and ascertain if any walls or buildings have been left in a dangerous condition, and take steps accordingly.

On receipt of a certificate from the district surveyor that the structure is dangerous, a notice in the terms of the certificate shall be served on the occupier, or be affixed to the building, and a copy sent by registered letter to the owner, if known.

Accompanying the notice a warning is to be sent that any delay in complying with the requirements of the notice will involve the owner in increased expense.

Where shoring or hoarding is required the owner shall be afforded an opportunity for executing the work when it can be done without risk of accident. In urgent cases, or on the owner's neglect, the manager of the Works Department of the Council shall be directed to carry out the necessary works.

The time to be allowed for works of repair or demolition must be limited according to circumstances.

At the expiration of the time given, the district surveyor is to report whether such works have been executed.

If the owner neglect to comply with the notice he shall, if the structure be in such a dangerous condition as to require immediate treatment, or if he do not within seven days from the service of the notice upon him give notice requiring that the subject shall be referred to arbitration, be summoned before a Petty Sessional Court as directed by the Act.

At the expiration of the time specified in the order, the district surveyor is again to report, stating that the danger has or has not been removed, and if the order shall not have been complied with, the required work shall be executed by the Works Department of the Council, under the supervision of an officer in the Superintending Architect's department.

On the completion of a case the amount for fees payable to the district surveyor shall be made out in accordance with the scale, and that account, together with the account for hoarding, shoring, and other works (if any) shall be forthwith submitted to the Finance Committee.

As soon as these accounts have passed the Finance Committee and been paid, the whole of the expenses incurred in relation to each dangerous structure shall be charged to the owner, and the necessary steps for the recovery of those expenses shall be taken by the Comptroller.

Licences are not to be taken out by the Council for hoarding or shoring, but the manager of the Works Department is in every case, upon the request of the Local Authority, to make good the pavement to the satisfaction of their surveyor, so soon as the hoarding and shoring is removed. The costs and expenses so incurred are to be recovered by the Council from the owner.

Neglected Structures.

Upon receipt of information that a structure is in a dilapidated or neglected condition, an inspection shall be made by an officer responsible to the Superintending Architect, and the result of such inspection shall be reported to the Committee.

When the owner of the neglected or dilapidated structure is known, a communication shall be addressed to him, calling his attention to the condition of such structure, and allowing fourteen days for the repair or removal of the same; and should the works not be commenced at the expiration of that time, a summons shall be applied for.

When it is found necessary to procure evidence from a local source to satisfy the Petty Sessional Court that the condition of the structure is such as to be prejudicial to the property, or to the inhabitants of the neighbourhood, the Solicitor or the Superintending Architect shall be authorised to obtain such evidence.

If, upon the hearing of the summons by the magistrate, an order be made, the Superintending Architect shall, at the expiration of the time allowed by such order, further report to the Building Act Committee. In the event of the order not being complied with, the Committee may instruct the manager of the Works Department to carry out the necessary work.

Mr. Norman Bevan, of the Comptroller's Department, is to act as proxy on behalf of the Council to prove any debt due to the Council on account of, or in relation to dangerous or neglected structures, in cases of bankruptcy or liquidation.

Where the Council has incurred any expenses in respect of any dangerous or neglected structure, and has not been paid or has not recovered the same, and a Petty Sessional Court has (in accordance with Sec. 116) made an order fixing the amount due to the Council, the Comptroller shall give notice thereof to the district surveyor for the district in which the property is situated, and the district surveyor shall be requested to give immediate notice to the Council when any building is about to be commenced upon the site, with a view to the necessary steps being taken to obtain payment of the amount due. The register of such orders [Sec. 116 (3)] shall be kept in the Comptroller's Department.

District Surveyors.

No person shall be accepted as a candidate fo the appointment of district surveyor unless he shal have attained twenty-eight years of age and be under fifty years of age, and every such candidate shall deliver with his application satisfactory evidence of his age.

Every candidate shall be required to sign a declaration, and deliver it with his application, that he becomes a candidate, and will accept the appointment, if he should be appointed, on the following understanding:—

(*a*) That he will personally discharge the duties of his office subject to Section 142 of the London Building Act, 1894.

(*b*) That he will give his whole time to the duties of his office.

(*c*) That he will not during his continuance in office (except in the discharge of the duties thereof) carry on business as an architect, surveyor, or builder, or directly or indirectly as a partner or otherwise, be interested in such business.

(*d*) That he will make no claim for compensation in case a diminution of his income shall at any time hereafter arise.

(*e*) That he will keep his district office open from Monday to Friday (both inclusive) between the hours of 9.30 a.m. and 5 p.m., and on Saturday from 9.30 a.m. until 2 p.m., and give his personal attendance there daily from 9.30 a.m. to 11 a.m., and (except Saturday) from 4 to 5 p.m., or at such times (not exceeding two hours a day) as the Committee may from time to time appoint.

(*f*) That he will retire if required to do so on attaining the age of 65, or at any date subsequent to his attaining that age.

The declaration of the appointed candidate shall on his appointment be entered on the minutes of the Council.

The districts are to be re-arranged by the Committee as opportunities may occur, so that the average of the fees received may in no case amount to less than 500*l.* per annum.

The following fees are to be paid by the Council to District Surveyors, in accordance with section 155 of the London Building Act, 1894—

On reporting that the roadway of a street sanctioned by the Council has been defined and made throughout, as regards levels, direction, width, and gradient, to comply with any statutes and by-laws for the time being in force regulating such street and to comply with the plans and sections attached to the Council's order sanctioning such street, and that all conditions (if any) attached to such sanction have been complied with	£2 2 0
On reporting that a way has been adapted as a street, or that a street or way has been widened in accordance with a sanction given by the Council, on an application made under Section 10, and that all conditions (if any) annexed to such sanction have been complied with.....	1 1 0
On reporting that a building, forecourt boundary, or fence has been set back to the distance from the centre of the street sanctioned by the Council under Sections 13 or 17, and all conditions (if any) annexed to such sanction have been complied with, and all land (if any) that should have been, has been added to the public way	0 5 0
On reporting that a building, other than a building sanctioned by the Council under Sections 13 or 17 and upon which the District Surveyor is entitled to a fee under these standing orders, has been erected to the line of frontage for which the consent of the Council was given under Section 22, and all conditions (if any) annexed to such consent have been complied with.....	0 5 0
For attending a Police-court to give evidence on behalf of the Council in relation to any of the above matters; for each attendance	0 10 0

THE DISPUTE IN THE BUILDING TRADE.

A MEETING of the National Association of Master Builders of Great Britain was held in Birmingham on the 18th inst. Nearly 500 delegates were present. When the last meeting was held in Birmingham it was decided to ask the unions of the various operatives for definite assurances that they had no sympathy with, and would not support, the plasterers, and that if such assurance were not forthcoming by May 6 the question of the terms of a general lock-out should be considered. As the result of inquiries made among the delegates at the meeting on the 18th inst., which was held in private, it was understood that the various operatives' unions had declined to give the assurance asked for. Before the general meeting the members of the council met and passed the following resolution :—"That this council approves of the action of the Yorkshire Federation in locking out their workmen in support of the Hull Master Builders' Association, and also approves of the terms of the manifesto issued by them." At the general meeting Alderman Holdsworth, of Bradford, presided. At the close the Press representatives were informed that the following resolutions had been passed :—(1) "That the proposals as set forth in the letter from the editor of the *Daily News* be accepted as a basis of a conference with the National Association of Operative Plasterers, and the representatives be appointed to attend." (2) "That, in view of the resolution passed at the meeting of the trade unions in Manchester on Monday last, this association will favourably receive any proposal for a conference with the view of an amicable adjustment of all matters in dispute, and that it is desirable such conference should be held before the end of this month." Though a settlement of the dispute has not been arrived at, there are good reasons for believing that matters will be satisfactorily adjusted shortly. The willingness of the parties to meet in conference again, affords ground for hope that a deadlock will be avoided. The conference between the National Association of Master Builders and the National Association of Operative Plasterers will be held on Tuesday next at the Salisbury Hotel, Salisbury-sq., E.C.

BOOKS RECEIVED.

PAPERS READ BEFORE THE TORONTO ENGINEERING SOCIETY. (The Carswell Co., Toronto.)

Correspondence.

To the Editor of THE BUILDER.

DUTY OF REPLACING PAVEMENTS.

SIR,—Under this heading, in your last issue, you blame the judgment of Mr. Justice Wills, possibly in consequence of the report of the case being imperfect.

As I was a witness, may I mention that the statement that the work was left "in such a condition that those who use the street can be injured as they walk through" is quite inaccurate? The hoarding was not removed, and thus not only could the street be used without danger, but as a fact was used without any injury to any one by the public for some eighteen months. The facts are interesting, and I think you will like to have them.

Some time after the London County Council had put the hoarding and removed the dangerous portions of the front wall, the claim for the work done and the hoarding was paid for by the owner. Even if before that date the Council could have removed the hoarding, their right to do so now ceased. (I fear to make this letter too long, or I would explain the reasons that I think in any case would have prevented their doing so. In this case danger would have resulted if they had taken such a course.) The owner, a long time after, used this same hoarding in rebuilding a portion of the house. Thereafter it was removed, and the accident occurred shortly after.

I draw no conclusion as to where the fault lay, but it is clear, I think, that the judgment of Mr. Justice Wills was right.

BANISTER FLETCHER.

The Student's Column.

ARCHITECTURAL HYGIENE.

XIX.—HEATING (*continued*).

5. STEAM PIPES.

THESE are not used for heating purposes to the same extent as hot water, but where waste steam is available it is convenient and economical to use it for heating. Where power is required in a building for working an engine for trade purposes or for electric light, &c., the same boiler can be used for the heating. Steam coils may be arranged in convenient places, and they are smaller *pro rata* than hot-water coils owing to the high temperature of the steam. Steam heating is somewhat difficult to control, and there is very often a noise caused in the coils. The "low-pressure one-pipe gravity return" method is used considerably in Chicago. Low pressure is there defined as not being more than 15 lb. per square inch above atmospheric pressure. The "gravity" refers to the return of the condensed steam to the boiler, and the "one-pipe" refers to the supply to the radiators of the steam, this same pipe draining off the water arising therefrom. Fig. 228 illustrates this method.* There is, of course, but one valve to each radiator, which, when it is open, allows the steam to enter and the water to pass away; when shut, this radiator cools down without affecting the rest of the system. A person, therefore, cannot misuse the radiator in respect of leaving one valve open and one shut as in the case of the two-pipe system.

The effective system for the utilisation of exhaust or low-pressure steam as a means of heating by direct circulation has been extensively adopted in the United States under the patents of Messrs. Warren-Webster & Co., of New Jersey. The use of exhaust steam as a means of heating in this country has generally been confined to the working of low-pressure hot-water apparatus by means of heaters or calorifers. Under this system there is a considerable waste of steam in many cases, and the difficulties attending the deposit of scale upon the tubes of the calorifers are too well known to require further comment.

The general principle upon which the Warren-Webster system is based is the suction of low-pressure or exhaust steam through the radiators or coils by means of a vacuum pump connected to a central receiver. No matter how remote a point the steam may have to be taken to, the circulation may be relied upon. No air cocks are required upon any radiators or coils; all air and gases, together with the water of condensation, being returned to the central receiver, where the gases escape, and the water is returned as a feed to the boilers. Each radiator or coil is fitted with a thermostatic valve or steam trap of a novel and compact description, exceedingly simple in principle and very effective in working. These valves are fixed on the outlets from the radiator to the return main. While a radiator is receiving its supply of steam, the valve remains closed, but it opens as soon as condensed water collects near the outlet—its action being very sensitive. Short circulating in any part of the system is thus effectually prevented. A special feature of the invention is the practicability of working the return mains from radiators situated below the level of the vacuum pump. With a vacuum of 15 in. it has been found possible to lift the condensed water in a return main with a difference in level of 7 ft. The feeder mains can be run without reference to levels if desired, but a thermostatic valve is required at the lowest point of each dip which may form a loop.

The common assumption that steam at a pressure exceeding that of the atmosphere does more work in heating is based upon the bare theory of the difference in temperatures. Comparing these, we find that while the latter is at 212 deg., a 5 lb. increase only adds 15 deg., or 7 per cent. to the heat supply, while a 10 lb. increase only adds 28 deg., or about 1·4 per cent. per lb. of pressure. As the removal of heat is effected by condensation and is in direct degree due to that condensation, the gain in radiating power must be shown to be greater than 1·4 per cent. per lb. of back pressure, in order to show any economic advantage over atmospheric circulation—this is not the case with the ordinary radiator, which does not so effectively circulate the air over its surfaces as to secure such an advantage.

The special features of the Warren-Webster system may be summarised as follows :—

1. Entire absence of back pressure on engines when exhaust steam is utilised.
2. Continuous automatic drainage of condensation.
3. A thoroughly effective circulation.
4. Absolute control of temperature. The valve on the inlet to a radiator can be closed down to the desired degree, admitting a smaller amount of steam than it is calculated to condense normally. Without any "water hammering" the radiator can then be kept, if desired, at a temperature just above that of the surrounding air, thus attaining that long-sought desideratum—the moderation of steam heating to suit mild weather.

Messrs. James Simpson & Co., of Pimlico, are now carrying out installations on these principles in England.

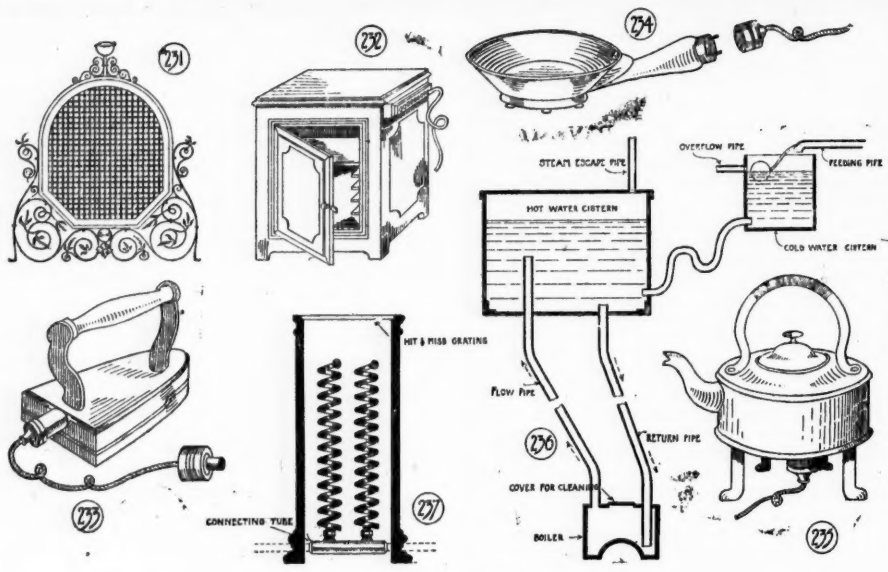
6. HOT-AIR.

This form of heating may be accomplished in two ways, (*a*) by passing fresh air through a furnace and leading it through pipe-ducts to various parts of a building; (*b*) by passing fresh air over a coil of hot-water pipes and using the warmed air for inlet ventilation. The first method is not used to any great extent in this country, but it has its doughty champions across the "herring-pond." The second method is in considerable use, and may often be carried out to advantage. Fig. 229 shows the principles of the systems used in the House of Commons, the fresh air passing through cotton-wool screens and then through hot-water pipes into the air chamber.* It then passes through the floor gratings to the House above. The smoke-flue in the clock tower forms the motive power for the extract. In this system dust particles are driven upwards from the floor and are inhaled into the lamp, and it has many other objections. In fact, it is not considered a successful scheme for the purpose. It is found in practice that the warmed air is advantageously brought in the apartments at a level of some 6 ft. from the floor.

7. ELECTRICITY.

The cheerful appearance of an open fire would probably prevent the very extended use of electricity for heating, even if the cost were of no consideration. However, that this may be accomplished with success is undeniable. Fig. 231 shows an electric radiator, which simply requires attaching to the wall-plug of an electric current when it will instantly commence to radiate heat. The electric current, in endeavouring to force its way through the small wire of the radiator, generates great heat, but the wire being buried in enamel, which expands in the same proportion as itself, is not permitted to become a source of danger. Electric cooking-stoves are

* For figures 228 and 229 see previous sheet of illustrations.



carried up above the level of the cold-water cistern, and be connected to the top of the hot-water tank.

The boiler in small systems is generally heated by the kitchen fire, and is of the saddle variety. Where, however, a large supply is required this independent boiler must be used.

(*b*) *The Cylinder System.*—Fig. 239 is now generally recognised to possess some important advantages over the *tank system*, the most apparent being that—

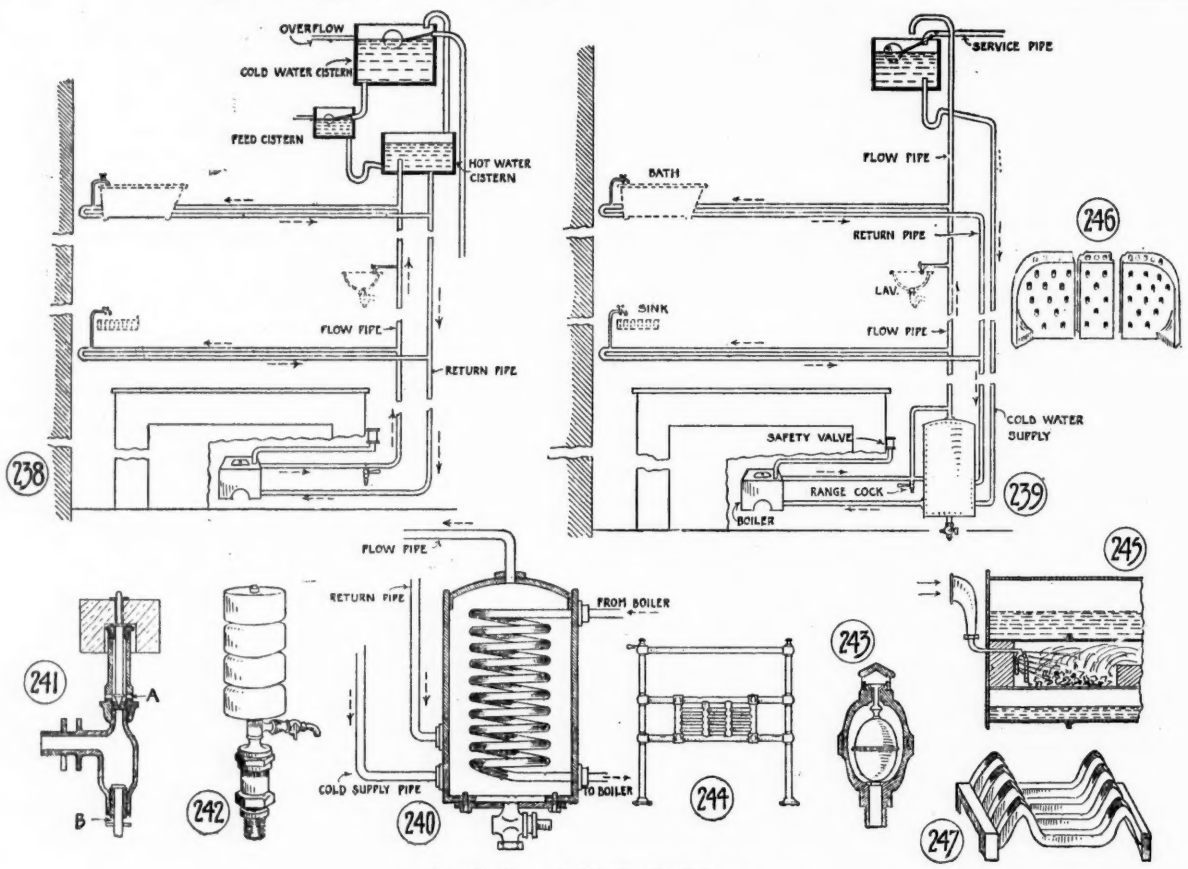
I. The system operates more quickly.

II. Temporary failure of supply does not stop the circulation.

III. More hot water is withdrawn before the temperature is lowered.

IV. Risk of incrustation to pipes is less owing to the shorter circulation of pipes between the boiler and the cylinder.

The principal difference lays in the fact that the reserve of hot water is at the base of the flow-pipe instead of at the top, as in the *tank* system. Care should be taken that the *cylinder* is a strong one, and that its cubical capacity is sufficient for the purpose required.



Illustrations to Student's Column.

constructed on the same principle, and an illustration is shown in fig. 232; there are no fumes or smoke to taint the food being cooked; they are very cleanly, and take up little room. Figs. 233, 234, and 235 show an electric flat-iron, saucepan, and kettle that have been successfully used. Electric hot-plates are also designed and found useful in places where the current is available.

The cost is the great drawback to cooking by electricity, but the time must come when this will be reduced. At 3d. per unit, however, the cost is almost three times as great as ordinary coal for the same purpose, but electrical ironing (see fig. 233) is said not to be more expensive, besides being so much handier in every way. In Edinburgh, where current for heating is 1½d. to 2d., the difference in cost should not stop people from using electricity for this purpose. In country houses where an installation has been put in, it will be found convenient when the current is plentiful to use electric radiators for airing the rooms, &c.; they, of course, are portable, and are very useful for this purpose.

8. HOT-WATER SUPPLY.

The same principles as for heating buildings are embodied in the domestic supply of hot water. The pipes should not be of less diameter than 1 in., and for big public institutions are even used up to 2½ in.; they should be of wrought galvanised iron. Lead pipes are apt to sag, and thus impede the circulation. Boilers should have a safety valve attached to a pipe that is not in connexion with the circulation system. There are three systems in use, viz.:—

(*a*) *The Tank System.*
(*b*) *The Cylinder System.*
(*c*) *A Coil Enclosed in a Cylinder.*

(*a*) *The Tank System* is the one that is, perhaps, in more general use at the present time. Fig. 236 shows the principles involved, and fig. 238 shows its application. The feed-cistern, which is controlled by a ball-valve, is fed from the cold-water cistern, and in turn supplies the hot-water cistern, being connected thereto with a siphon. All these are placed at the top of the system. The *flow*-pipe is connected to the top of the boiler, and the *return*-pipe to the bottom. All branch pipes supplying hot water to the various fittings should be connected to both of the above pipes, and should enter the *return*-pipes at a lower level than at that from which they receive the *flow*. Where, however, a fitting is very adjacent to the *flow-pipe* this is not so necessary, as the amount of cold water, to be drawn out of the branch pipe (which, of course, does not form part of the circulation) before receiving the hot water from the flow-pipe, is small. In the case of a bath it is not so material to have the dual connexion. An escape-pipe for steam and air should be

Either of the above systems may also be used for the dual purpose of heating various parts of the house as well as for the hot-water supply, provided that the boiler is large enough; and a towel-drier of piping in the bath-room should always be provided where possible.

Fig. 244 shows Potterton's combined radiator and towel airer. These are very convenient fixed in a bath-room, and, of course, can be used, if desired, for airing linen.

(*c*) *A Coil Enclosed in a Cylinder* (fig. 240) is sometimes used for heating water supply, and may be utilised with advantage where waste steam is available. As a rule, however, it is not advantageous to use this method if steam has to be generated especially for this purpose. Sometimes hot-water high-pressure coils are used in lieu of steam.

9. SAFETY VALVES.

There are, of course, several varieties of valves in use, but probably that shown in fig. 241, which is patented by a Mr. Stainton, of London, is as good as any. It is known as a dead-weight relief valve. The advantage claimed is that, in the case of excessive pressure, the water finds an exit at the outlet A into the supply cistern, and as the water becomes cooled it returns through the inlet B, owing to the reduction of pressure in the pipe.

Fig. 242 shows one of Potterton's patent

indicating safety valves, which contain the following improvement:—The spindles of these valves are made of brass tubing, with a small cock connected to the latter, so that water can be drawn from the seating of the valve. If this is done it will indicate that the seating is free from incrustation, because if the seating became fixed by such cause, the hole at the bottom of the hollow spindle would be stopped up and no water could pass. The valve and pipe should, in this case, be disconnected and examined.

Fig. 243 shows a section of Shield's automatic air-valve. It is used for convenience where the usual air-cocks would be objectionable, and is said to be successful.

Smoke Prevention.—Fig. 245 shows Messrs. Belcher's prevention of smoke in steam boilers. The apparatus consists of an air-pipe fitted with regulating discs and with various valves and tubes fixed on the exterior of the boiler, by means of which a forced draught of air and steam is introduced into the fire, and by means of a "spreader" in the inside of the furnace the draught is concentrated upon the fuel.

The advantages claimed are simplicity in construction, necessitating no structural alterations to boilers; it is also under perfect control, and enables steam-power users to burn the cheapest fuel and even refuse without producing smoke.

OBITUARY.

COUNT HENRI DELABORDE.—The Count Henri Delaborde, permanent Honorary Secretary of the French Académie des Beaux-Arts, and "Commandeur" in the Legion of Honour, has just died at the age of eighty-eight. His first choice in life was painting, which he studied under Paul Delaroche, and he made his first appearance at the Salon of 1836, with a painting, "Hagar in the Desert," which is now in the museum at Dijon. He executed also two pictures commissioned by Louis Philippe for the gallery of Versailles; the "Knights of St. John of Jerusalem," and the "Taking of Damietta." In the Salon of 1847 he obtained a "première medaille" for his "Dante at Verona." But after this he abandoned art for archæology, and became in 1855 assistant curator of engravings in the Imperial Library, and subsequently principal or honorary curator. He entered the Institut in 1868, and was appointed permanent Secretary of the Académie des Beaux-Arts in 1874. His failing health obliged him last year to resign. As a critic and historian of art he leaves a considerable amount of work behind him. Among other works may be mentioned his "Studes sur les Beaux-Arts en France et en Italie"; "Mélanges sur l'Art Contemporain"; "Ingres: Sa Vie et ses Œuvres"; "Le Cabinet des Etampes"; "L'Histoire de la Gravure"; "La Gravure en Italie avant Marc Antonin"; and lastly, "L'Académie des Beaux-Arts depuis la Fondation de l'Institut." Count Delaborde was connected, either directly or by marriage (we forget which) with M. César Daly, the well-remembered founder and conductor of the *Révue Générale de l'Architecture.*

MR. CHARLES BELL.—We regret to record the death of Mr. Charles Bell, a well-known City architect and a Fellow of the Institute of Architects. Mr. Bell was successful in some competitions, and carried out a good many buildings of considerable size and importance. Among them may be mentioned the circular ward of the Hampstead Infirmary; the Board schools for Basingstoke, selected in competition; the Northern Polytechnic Institute in Holloway-road, selected in a limited competition in which Mr. Wyatt Papworth was the assessor; Wesleyan churches at Bermondsey, Twickenham and Nunhead, and the completion of the buildings of Kent College, near Canterbury, for the Kent Wesleyan Methodist School Association.

MR. J. W. H. BEDFORD.—We regret to announce that Mr. J. W. H. Bedford, Secretary of the Provident Institution of Builders' Foremen and Clerks of Works for twenty-five years, died at his residence, Long Ditton, Surrey, on the 13th inst.

GENERAL BUILDING NEWS.

MISSION CHURCH, DUNDEE.—A mission church is being erected by the congregation of St. Paul's Episcopal Church in Blackscroft, Dundee. The new building will be known as St. Roque's Church. The church will be provided with chancel, organ-chamber, vestry, baptistry, and mission rooms. The material to be employed in construction is red brick and stone, with green slates, and the cost is estimated at about 2,000*l.* The architect is Mr. T. Martin Cappon.

CHURCH, GLASGOW.—Queen's Cross Church, situated at the corner of Garseube-road and Springbank-street, is one of the first of the mission-planting scheme at present being carried out by the Free Church of Scotland. The plan shows a departure from the ordinary style of mission church, there being only a back and narrow transept gallery, the whole of the area being open to the roof. The passages are so arranged that every one of the congregation has an uninterrupted view of the preacher. The dimensions of the church are as follows:—Area, 71 ft. 6 in. by 43 ft., and the height of the closed-in roof is 41 ft.; transept, 33 ft. by 9 ft., and the chancel, in which the choir and Communion table are accommodated, 22 ft. by 14 ft. There is also provided an organ chamber. The pulpit is situated at the north side of the chancel arch, immediately in touch with a small vestry balancing the organ chamber on the opposite side of the chancel. The baptismal font is built on the ingoing of the chancel arch opposite the pulpit. The accommodation provided is:—Area, 559; back gallery, 160; transept gallery, 71; choir, 30; total, 820. At the back of the church there is a hall capable of accommodating 260 people, the dimensions of which are 34 ft. by 34 ft. and 22 ft. high. At the corner of the street is a tower rising to a height of 56 ft. from the street level, being at the base 20 ft. square and at the top narrowing to 15 ft. It is built of Locharbriggs stone, and roofed with Aberfoyle green slates. The contractors for the work are:—Mason work, Wm. Taylor; joiner work, Wm. M'Call & Sons; slater work, John Anderson; plaster work, Wm. Forbes; plumber work, Jas. Ingleton & Co.; heating work, Hunter, M'William, & Co. The architects are Messrs. John Honeyman & Keppie.—*Glasgow Evening Citizen.*

BAPTIST BUILDINGS, BROADSTAIRS.—The new Baptist School-room in Queen's-road, Broadstairs, is now in course of erection and will be used for services until the main building is erected. The building will be of red brick, with stone dressings, from designs by Mr. Arthur H. Clarke, of Broadstairs. The accommodation provides for the school-room, class-rooms, vestries, store-rooms, lavatories, furnace-room, &c.

CHURCH SCHOOLS, WOLVERHAMPTON. — The memorial-stone of the new school buildings in connexion with St. Andrew's Church, Wolverhampton, was laid recently. The site, which comprises 1¼ acres of land, is in Gates-street, Whitmore Reans. The buildings now being erected will provide accommodation for 292 girls and 335 infants. It is not proposed at present to bring the boys' department to the new buildings. The total cost is estimated at about 4,000*l.* The builder is Mr. J. Herbert, and the architect Mr. F. Hunter Lynes.

CHURCH FOR NEW HINKSEY, BERKS.—The foundations of the western half of a new church for the parish of New Hinksey are now being put in, the estimated cost of this part of the building being 5,000*l.* The architects are Messrs. Bucknall & Comper, of Westminster. The church, when completed, will accommodate 600.

INTERMEDIATE SCHOOL, BUILTH. — The new county school at Builth, established under the auspices of the Welsh Intermediate Education Act, was opened recently. The site of the new school covers nearly an acre of ground, and is situate in front of Groe Green. The walls of the building are worked with Llanelwedd stone, and all the dressings are of Hollington stone. The roof is covered with mottled red tiles and plain red cresting tiles. The building is L-shaped, and faces the Groe Green and the new Cross-road. Entering by the boys' porch, out of Cross-road, a wide corridor is reached. On the left are a cloak-room and lavatory, with master's room adjoining, and on the right a large school-room, 40 ft. by 20 ft. 6 in. and 13 ft. 6 in. high, with two fireplaces, and having a movable folding partition for dividing it into class-rooms. At the end of the corridor, facing the entrance, is placed the chemical laboratory. This is 25 ft. by 19 ft. 6 in., with store-room adjoining. There are also a fume chamber and a combustion chamber, with foul air flues, adjoining the laboratory, 20 ft. by 18 ft., on the east side, to be used as a class or lecture room. The entrance for the girls is from the Groe Green-road by a door adjoining the lecture-room. Ascending a stone staircase, 4 ft. wide, the first floor is reached. The girls' school and class-rooms are located over and are similar in size to those of the boys. Their technical room is above the chemical room. This room and the large room are 14 ft. 6 in. high. The rooms on the ground floor, all of which are 13 ft. 6 in. high, are laid with wood blocks, and the corridors on the ground and first floor with Terrazzo marble mosaic paving. The rooms are heated with patent Manchester school grates. The contract was let to Mr. Alfred Meredith, Newbridge-on-Wye, Radnorshire. Messrs. T. Potter & Co., London, were the contractors for the fire-proof flooring; and Messrs. B. Ward & Co., London and Cardiff, for the wood block flooring and the Terrazzo mosaic paving. The plumbing, painting, and colouring work was carried out by Mr. E. Dixon, Builth; the plastering by Mr. D. Evans, Builth; and the gas-piping, &c., by Mr. S. G. Tulk, Builth. Accommodation is provided for 120 children, and the building will allow for further extension when required. The original plans and specifications were by Mr. Stephen W. Williams, architect, Rhayader, while the amended contract, detailed drawings, and specifications were prepared by Mr. Telfer Smith, Builth, under whose superintendence the work has been carried out.

SCHOOL, CRESWELL, NOTTINGHAM.—A new school has been erected at Creswell from the designs of Messrs. Brewill & Baily, architects, of Nottingham. The school, which will accommodate 450 children, consists of a central hall, seven class-rooms, cloak-rooms, and lavatories, with master's and mistress's rooms.

COUNTY SCHOOL, HAWARDEN.—The Hawarden County School was formally opened on the 18th inst. by Miss Helen Gladstone. The building contract was for 2,450*l.*, exclusive of extras. The new buildings, of red brick, are situated on the main road through Hawarden; they consist of two central class-rooms, divided by a sliding partition, which when removed gives an assembly-room 44 ft. long by 22 ft. wide. To the west of this central block is the boys' wing, consisting of the headmaster's room, class-rooms, and laboratory, with coat-room, and lavatory, and boys' porch. To the east of the centre is the girls' department, while to the south of the central block is a luncheon-room and kitchen, with access by means of covered ways from both wings. Externally the walls are of red Ruabon bricks, with dressings and mullioned windows of red terra-cotta, from Mr. J. C. Edwards's works, and the roofs are of red Ruabon tiles. The arms of the county appear in the central gable. The schools were designed to accommodate fifty-four boys and forty-four girls. The architects are Messrs. Grayson & Ould, of Liverpool, and the contractors Messrs. W. & T. Bailey, of Hawarden.

COUNTY SCHOOL, FESTINIOG.—On the 20th inst. the foundation-stone of this school was laid. The structure is to cost about 6,000*l.* The architects are Messrs. Willink & Thickness, of Liverpool, and the contract has been let to Messrs. Hughes & Stilling, of the same city.

INSURANCE BUILDINGS, GLASGOW.—A new building for the Liverpool and London and Globe Insurance Company is to be erected at the south-east corner of Hope-street and St. Vincent-street. The buildings are expected to be completed in about a year. They are to be of Locharbriggs red freestone, relieved at points with Peterhead red granite. The frontage to Hope-street is 114 ft. and to St. Vincent-street 64 ft. The distance from the street to the highest point is 120 ft., there being eight stories and a basement. The Liverpool and London and Globe Insurance Company's office is to be entered from St. Vincent-street and it will extend back to the lane, 114 ft. The remainder of the space on the ground floor will be utilised for shops, and the upper floors will consist of offices. There will be two entrances to the upper floors, one from St. Vincent-street with one electric lift, and one from Hope-street with two electric lifts. The builders are Messrs. B. & W. Anderson. Mr. James Thomson is the architect.

BUSINESS PREMISES, LINCOLN. — A building, which will be used as a restaurant, has just been erected in Sincil-street, facing the Fish Market. Mr. J. T. Drury was the architect, the general contractor being Mr. Fanthorp and the plumber Mr. J. R. Green.

COLLEGE ENLARGEMENT, BUXTON.—A hall is being erected on the site of the tennis lawn on the west side of the present building. The hall is intended for assemblies and classes, and will be connected with the present building by an annexe. The present school-room will be divided up into class-rooms. Mr. Bryden is the architect, and Mr. Oakes the contractor for the alterations and additions.

THE NEW COLSTON HALL, BRISTOL.—The Bristol Sanitary Committee have approved of the plans for the new Colston Hall. Messrs. Jones & Cummings, the architects, whose plan took the first premium in the competition, have, in consultation with the directors of the company, introduced considerable modifications into their design. By the purchase of a wide strip of land, the site has been, roughly speaking, lengthened a third. The land secured extends a little beyond the line which will be taken by the new end wall at the back of the organ.

HOME FOR CRIPPLED BOYS, LONDON.—On the 19th inst. the Duchess of Albany reopened the Home for Crippled Boys in Margaret-street, Cavendish-square, which has lately been rebuilt. The home, or hospital, was founded sixteen years ago by the All Saints' Sisterhood, and has since been maintained mainly at their expense. Messrs. Lander, Bedells, & Crompton, of John-street, Bedford-row, were the architects.

THEATRE ROYAL, PETERBOROUGH.—The plans for the proposed reconstruction of the Theatre Royal, Peterborough, have been passed by the City Council. For some time the management of the Theatre Royal have contemplated the conversion of the present hall into a modern playhouse. The façade of the building will be in the Italian style, and it is nearly 50 ft. in height and 65 ft. in breadth, the centre portion being occupied by two entrances, and these in turn flanked by large double-fronted shops. To bring this about the whole of the present front to Broadway is to come down. One of the entrances is to the pit, and the other to the stalls, the gallery entrance being on the north side. With the exception of the front the three remaining walls will be retained, but considerably heightened. The interior will contain three tiers. On the ground floor the pit will accommodate 466 people, with stalls accommodating 120. On the south side there will be a refreshment bar and dressing-rooms. Above this is the dress circle, which will seat about 120 people, together with private boxes at each end of the circle overlooking the stage. At the rear of the

dress circle seats there will be a ladies' room, a crush room, a refreshment bar, gentleman's cloak-room, and on the same level, near the stage, four dressing-rooms, having access by a staircase to the stage below. Above this tier is a gallery, giving accommodation for several hundreds. It is reached by a stone staircase, and, in addition, there is also an iron staircase on the outside of the building, which could be used in case of fire. The architect is Mr. J. P. Briggs, of London.

SANITARY AND ENGINEERING NEWS.

DRONFIELD SEWAGE WORKS.—The new Sewage Disposal Works of the Dronfield Urban District Council, recently opened, have been completed in accordance with the designs of the Council's Engineer, Mr. G. White, C.E., of Mexboro,' and are on the International system, comprising Candy circular upward flow tanks with automatic sludge or detritus removal apparatus, clarifiers and polarite oxidising filterbeds, now popularly termed bacterie beds. The scheme has been carried out in accordance with the plans approved by the Local Government Board, the contractors being Messrs. Margerrison & Sons, of Dronfield.

PUBLIC IMPROVEMENTS, DEWSBURY.—Colonel March, C.E., one of the Local Government Board Inspectors, held an inquiry at the Dewsbury Town Hall on the 18th inst. into the applications of the Corporation for sanction to borrow money for three separate purposes, viz., for street improvements (Westgate, Wheelwright-street, and Boothroyd-lane), 650*l.*; for electric-lighting extension in buildings, plant, &c., 9,060*l.*; and for a covered market on a site bought several years ago, 3,000*l.* Evidence was given in support of the three proposals by the Borough Surveyor (Mr. H. Dearden) and in support of the second by Mr. O. Jonas, the Borough Electrician.

DRAINAGE AND WATER SUPPLY WORKS, MARGATE.—On the 19th inst. Colonel W. Langton Coke, M.Inst.C.E., held an inquiry on behalf of the Local Government Board, at the Town Hall, Margate, with reference to the applications of the Margate Town Council to borrow 5,440*l.* for works of sewerage, 4,100*l.* for works of water supply, and 1,000*l.* for public walks and pleasure grounds. The Borough Engineer and Surveyor (Mr. Albert Latham) was in attendance.

FOREIGN.

FRANCE.—The Société Nationale des Architectes de France has chosen, for its eighth annual competition, the subject, "L'Auberge de Demain," in other words a model design for a modern wayside inn, with every provision for cyclists and motor cars.—It has been nearly decided that next year the two Salons will be organised in the Avenue de Breteuil, on the site of the former abattoirs of Grenelle.—M. Saint-Marceaux, the sculptor, has been commissioned to execute the monument which is to be erected in Père Lachaise to the memory of M. Faure, the late President.—The Council of Paris have decided that the stations at Hotel de Ville, Louvre, and Palais Royal, on the Metropolitan Railway, are not to have any visible buildings above them, in order not to spoil the perspective of the Rue de Rivoli. For the Place de la Concorde, Champs Elysées, and Avenue de l'Alma stations the question is deferred. There is at all events every desire to render the inevitable station entrances as little conspicuous as possible.—The Carnot monument at Dijon was inaugurated last Sunday. It is the joint work of M. Gasq and M. Mathurin-Moreau (sculptors) and M. Vionnois, architect. It consists of a rectangular pyramid in front of which, at half its height, is placed the statue of the late President, in marble. At the sides are two groups in stone, symbolising "La Douleur de la Bourgogne" and "L'Histoire inscrivant sur ses tablettes le nom de Carnot." On the apex of the pyramid is a figure personifying "La Gloire." Behind it is an altar to "La Patrie."—The death is announced of M. Louis Leroux, architect, member of the Société Centrale, and Directeur of Public Works to the town of Turcoing. M. Leroux, who was sixty-five at the time of his death, was one of the most prominent members of the Société des Architectes du Nord. He had built numerous schools and religious edifices, especially the churches of Watrelos, Préseau, Dorigny, and Doulieu. He was one of the competitors in the great competition for the church of Montmartre.—We have also to announce the decease, at Toulouse, of M. Henri Bach, for many years Professor at the Academy of Art in that town. He was an artist with a special knowledge of the art of the thirteenth century, and had been concerned in additions or restorations to several ancient churches of Toulouse. He was eighty-four years of age.

BRISTOL MASTER BUILDERS' ASSOCIATION.—Arrangements are being made for the annual excursion of the Bristol Master Builders' Association, which has been fixed for June 27. The visit will be to Bridgwater and the Quantocks. The annual conference of the National Association of Master Builders is to be held in Plymouth on July 18.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Dennett H. Barry, Surveyor to the Hon. Society of Lincoln's Inn, has removed his offices to 21, Old-square, Lincoln's Inn.—The Surveyors' Institution give notice that they are in occupation of their new building, 12, Great George-street, Westminster, from May 26. Rooms for arbitrations &c., may be secured after May 31.

DEMOLITION OF OFFICES IN THROGMORTON-STREET.—We regret to hear of the demolition of Messrs. Capel & Norbury's offices in Throgmorton-street, which were designed by the late Mr. J. J. Cole, and were illustrated in the *Builder* of November 4, 1854. It was a very good building of its period, and is noticeable as being one of the first City office fronts, if not the first, in which polished granite was used as an element of decoration (though whether that is altogether an advantage may be matter of opinion); and Mr. Cole in this building also introduced the feature of carving and enrichment in the reveals of the windows, as a suitable position for decoration in a narrow street.

NORTHERN ARCHITECTURAL ASSOCIATION.—The members of the Northern Architectural Association held an outdoor meeting at North and South Shields recently. The visitors were met at the North Shields railway station by the local representatives, and the company, numbering about thirty altogether, proceeded first of all to the new Board Schools in Coach-lane, North Shields, which have been erected from the designs prepared by Mr. Marshall, of Newcastle. Afterwards they crossed over the ferry to the new Empire Palace. Messrs. Milburn, of Sunderland, were associated with Mr. Frank Matcham, of London, in the designing of this building. Afterwards the party visited the Ingham Infirmary, where Mr. Harry Grieves, the architect, conducted them over the new extensions, and the last place visited was the Mortimer-road Infant Schools, erected from the plans of Mr. J. W. Donald.

APPOINTMENT.—The Croydon County Council have elected Mr. G. F. Carter, principal assistant to the Leeds City Engineer, as Deputy Borough Engineer of Croydon. The applications numbered 106.

KENSINGTON PALACE-GARDENS.—On June 27 will be offered for sale, at the Mart, No. 18, occupied by the late Baron Reuter. The house, on the east side, was built upon Crown lands, after the designs of Sir Charles Barry, and has two floors and a basement, with a picture gallery and two towers on the south side; the interior is richly decorated.

OPEN SPACES, DOLLIS HILL.—A sum of about 2,600*l.* is all that is now required to complete the purchase moneys for the Dollis Hill estate of 98 acres, to be acquired for 50,000*l.* Contributions have been made by the London County Council, 3,000*l.*; Middlesex County Council, 12,500*l.*; Willesden and Hendon District Councils, 30,000*l.* and 500*l.*; Hampstead Vestry, 1,000*l.*; and the Skinners' Company, 50 guineas.

PAINTING WORK.—In these times when competition is so great architects should not lose an opportunity of seeing that the painting is carried out according to specifications. The painting trade gives many opportunities in all its branches to disregard the specifications and to scamp the work, unless there be an up-to-date foreman or clerk of works, and many tenders are let for this portion of the work at ridiculously low prices, the consequence of which is, to make the job pay, the painter has to get out of a coat of paint here and a coat of size there, and such like tactics, and it is almost impossible for any one, however expert, to be sure whether the work has had three or four coats without the architect specifies a distinct shade for each coat, and each coat to be passed before being painted with the next, and it is greatly the want of care in this department that enables unscrupulous contractors to go in for and take jobs at what is known to be a price that will just about cover the cost of the materials in the full determination of swindling and scamping in every part of the job. Too much care, therefore, cannot be exercised by architects, who should enforce the full letter of the specification and make an example of a few who go in for the cut-throat policy. If this were put into practice it would purify and elevate a trade which has fallen to such a low state, and enable master painters to pay a fair day's wage for a fair day's work. — *The Building, Engineering, and Mining Journal of Australia.*

MEMORIAL WINDOWS, BARNARD CASTLE PARISH CHURCH.—The east window, and a window in the chancel of this church have just been filled with stained glass, the work of Messrs. Burlison & Grylls, of London.

CAPITAL AND LABOUR.

WOLVERHAMPTON PLUMBERS' DISPUTE.—Practically there is no great change in the position of affairs relating to the plumbers' dispute at Wolverhampton. The men's notices should have expired on the 20th inst., but an understanding has been arrived at satisfactory to both sides, which has ended in the notices being extended into June. The Secretary of the plumbers' Wolverhampton branch received a communication from the master builders, who had been asked to receive a deputation of the men, requesting the latter to stay their hand and extend their notices over the holidays. A meeting was called on Friday last, when it was decided, after a lengthy consultation, to grant the request of the masters and extend the notices until June 3. It is said that the plumbing trade in Wolverhampton is very slack at the present time.

BOLTON BUILDERS' STRIKE.—A conference took place on the 23rd inst. between the Bolton master stonemasons and the operatives' representatives, to consider the demand made by the latter for an advance on wages of a penny per hour, and certain alterations in working rules, which would mean an increased cost of production to the employers. In order to avoid a strike the masters offered a half-penny per hour increase, making the men's remuneration 9½d. This was refused by the operatives. The employers have withdrawn their offer, it is stated, and are determined to resist the men's demands.

LEGAL.

A BRISTOL BUILDING DISPUTE.

THE case of Long and Others *v.* Thompson came before Mr. Justice North in the Chancery Division on the 19th inst., on a motion by the plaintiffs for an *interim* injunction to restrain the defendant until the trial of the action, or further order, from so building adjacent to the plaintiffs' premises, Manilla-road, Clifton, Bristol, as to interfere with the light and air coming to them.

Mr. Vernon Smith, Q.C., who appeared in support of the motion, said that the plaintiffs could not ask for relief upon the ground that their windows were ancient lights, but they rested their case on the ground that the vendor of the houses had derogated from his grant. The houses in question were Nos. 8, 9, and 10, Manilla-road, Clifton, Bristol, and the defendant's house had been put up at the side of them. The defendant's house was up, but he (counsel) should ask for a mandatory order to compel them to pull down, at all events, 5 ft. of wall which had been erected since the notice of motion was given. The plaintiffs were mortgagees in possession of Nos, 8, 9, and 10, Manilla-road; No. 8 was unlet, and had been so for more than two years, but the other two houses were in the possession of a Mr. Crawford. The defendant's house was distant from the plaintiffs only 29 ft. Its height was about 40 ft. to the bottom of the roof and about 36 ft. above the cills of the plaintiffs' basement windows, which were the windows principally affected. The defendant, in putting his house where he had, had deviated from the original plan of the estate, and so created a new road which he called Mortimer-road. The house, if it were allowed to remain up, would seriously affect the light and air coming to the plaintiffs' premises, and he (counsel) submitted that under the circumstances the plaintiffs were entitled to a mandatory injunction. The plaintiffs first knew what the defendant was doing on April 1, and on the 13th complained in writing, and on the 15th the writ was issued, which on the 19th was served on the defendant's solicitor. Subsequently, an undertaking was asked for but refused. On the 21st the present notice of motion was served. On April 22 the defendant put on extra men, and since the service of the notice of motion the wall had been raised by 5 ft. He contended that that 5 ft. ought to come down. The building estate upon which these houses were being erected was the property of Sir Joseph Weston, who in 1888 entered into a building agreement with a gentleman to build certain houses which included the three in respect of which this action was brought. Building plans were prepared which showed the Manilla-road with a road at the back called the Weston-road. The houses in the Weston-road and the Manilla-road had gardens at the back, so that between the backs of the houses, if built in accordance with the plans, there would have been a space of 48 ft. Sir Joseph Weston died in 1895, and since that date his representatives had sold or conveyed to the defendant the property upon which he had erected the house complained of. He had taken up Weston-road, which had already been metalled, and had made instead a road at right angles to Manilla-road, and had the side of his house against the plaintiffs' house. The defendant's allegation was that the plaintiffs had suffered no real damage.

Mr. Henry Jerrell, Q.C., for the defendant, did not deny that when this estate was laid out there was a building scheme, but submitted that when the defendant took his land he took it upon condition that he was not to be tied by the scheme.

After further argument, his lordship, in giving judgment, said the plaintiffs had made out a *prima facie* case of their right to the light on the convey ance, and it was clear defendant had run up the building to the eaves after he had been warned, and after the writ had been issued. Still, he did not intend to make a mandatory order, as he thought it would make very little difference to the plaintiffs at the trial, whilst, of course, it would be a very serious matter to the defendant to pull down a house which was finished, so far as the external parts were concerned. He would accept Mr. Jerrell's undertaking to abide by any order made at the trial, and there would be no order on the motion except that plaintiffs' costs should be costs in the action.

Order accordingly

ARCHITECTS *v.* BUILDER.

AT the Wolverhampton County-court on Thursday last week, Messrs. Manton & Sons, architects, of Wolverhampton, brought an action against Mr. Philip Bowater, builder, Wolverhampton, claiming the sum of 23*l.* 18s. 9d., alleged to be due to them from defendant in respect of certain work done by the plaintiffs in the erection of houses at Wolverhampton between March and September last. Mr. R. A. Willcock appeared for the plaintiffs, and Mr. R. C. E. Plumptre for the defendant. The circumstances of the case as alleged by plaintiffs were that the defendant had received a contract for the erection of some houses for a Mr. Hickman, at Gorsebrook. Plaintiffs were the architects for the work, and prepared the plans, &c.

When the contract was presented for signature by Mr. Hickman and Mr. Bowater respectively, the former refused to sign because the plaintiffs also presented a bill of "extras" for £17 18s. for work done up to that point. As Mr. Hickman declined to pay or sign the contract, the defendant, who had already placed 150,000 bricks on the land, instructed the plaintiffs to transfer the amount of the extras to his own account and he would guarantee the payment.

Mr. Manton, senior, stated that the defendant had paid him 10s. and offered him £5 to settle the matter, but witness refused.

Mr. Plumptre, for the defence, admitted that plaintiffs were entitled to certain sums amounting to 34*l.* 11s., but, as a matter of fact, defendant paid on account to plaintiffs a sum of 56*l.* 19s., so that the plaintiffs were indebted to defendant for the sum of 22*l.* 18s., the overplus of money paid and lent.

A verdict was entered on the main issue for the plaintiffs for 17*l.* 18s. With regard to the counter-claim and several of the charges which were in dispute, those matters were regarded as matters of account and were referred to an arbitrator to decide on the reasonableness or otherwise of the charges involved.

NETTLETON *v.* DUBIN.

AT the Weston-super-Mare Petty Sessions, held on the 19th inst., Mr. Montague Dubin, builder of that town, was summoned by Mr. Hugh Nettleton, Town Surveyor, for having unlawfully erected, or caused to be erected, certain buildings, without having previously given to the Urban District Council notice in writing of his intention so to do, and without having previously delivered to the Surveyor complete plans and sections of such buildings.

A fine of 3*l.* and costs was imposed.

MEETINGS.

FRIDAY, MAY 26.

Architectural Association (Discussion Section).—Mr. J. Leonard Williams on "Houses of the Speculative Type."

MONDAY, MAY 29.

Royal Institute of British Architects.—Special General meeting to admit to candidature as a Fellow Mr. Bodley, A.R.A. 8 p.m.

Surveyors' Institution.—Annual General meeting, to receive the report of the Council and the announcement of the result of the election of officers (meeting to be held at the new building, 12, Great George-street, Westminster). 3 p.m.

TUESDAY, MAY 30.

Royal Institution. — Professor W. J. Sollas on "Geology." III. 3 p.m.

Society of Arts (Applied Art Section).—Mr. J. Starkie Gardner on "The Revival of Tradesmen's Signs." 8 p.m.

Surveyors' Institution.—Junior Meetings' Annual Dinner, to be held at the Monico Restaurant, Piccadilly-circus, W. 7 p.m.

WEDNESDAY, MAY 31.

Architectural Association.—Annual Dinner, Holborn Restaurant. 7 p.m.

THURSDAY, JUNE 1.

Society for the Encouragement of the Fine Arts.—Dr. J. S. Phené on "The Schools of Painting of Sicyon and Ephesus." 8 p.m.

Carpenters' Hall, London Wall (Lectures on Carpentry and Joinery).—Professor T. Roger Smith on "Timber: Decay and Preservation of." 7.30 p.m.

Society of Arts (Indian Section).—Sir Charles Cecil Stevens on "The Port of Calcutta." 4.30 p.m.

SATURDAY, JUNE 3.

Edinburgh Architectural Association.—Annual excursion. Visit to Arbroath Abbey, &c.

Northern Architectural Association.—Visit to Chester-le-Street and Lumley.

RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

Open to Opposition until July 17.

[1898] 2,089, Frommann, Automatical Opening and Closing of Doors. 8,499, Kittson & Browne, Pigment or Paint. 10,381, Crane, Flushing Apparatus. 10,435, Moulan, Water Meters, &c. 10,719, Balluet, Portable Drilling Machines. 11,640, Heimel, and 15,346, Faure, Accumulators or Secondary Batteries. 12,149, Pease, Roofs and similar Structural Work. 12,365, Walker, Portable Electrical Lamps for use in Mines and other places. 12,550, Purcell, Portable Fire Escapes and Extensible Ladders. 12,872, Adams, Flushing Closets. 13,028, Hamblet & Parkes, Dies and Appliances for making certain kinds of Sewer Blocks, Drain Pipes, Conduits, Channel Blocks, &c. 13,137, de Tunzelmann, Holder for Carrying Carbons or Electrodes for use in Electrical Welding, Brazing, &c. 13,409, Mould, a Combined Boiler, Bath, and Sink, &c. 13,518, Restall, Apparatus for Cleaning and Repairing Drain and other Pipes or Conduits. 13,636, Forbes, 15,423, Bohne, [1899] 5,090, Riemanns, and 6,925, Combier, Acetylene Generators. 13,858, Holland, Guard for Circular Wood-moulding Machines. 13,929, Barr & Thomson, Machine for Cutting Elliptical and other Eccentrical Forms. 13,993, Nall, and 22,144, Robinson, Automatical Guard or Shield for Circular Saws. 14,027, Legros, Self-locking Double-bolt Door Locks. 14,035, Wagner, Raising and Lowering High-hanging Gas Lamps or Lanterns. 14,247, Knoeferl, Slinging and Shifting Cradles, &c., for Builders' Purposes. 14,441, Hueter & Prügel, Boring Holes and Turning Bodies of Angular or Polygonal Shape or Section. 15,327, Russell, Open Fire Cooking Ranges. 15,732, Spanier, Controlling the Supply of Feed Water to Acetylene Gas Generators. 15,989, Barrodale, Aid to Model Drawing. 16,022, Kiefer & Herbst, Bricks. 16,187, Gürtler, Application of Expanded Metal to Constructional Purposes. 16,785, Strong, Gas Heating Stoves. 17,129, Rawlings, Automatical Flushing Cisterns. 17,822, Wells, Pumps. 18,331, Leaver & King, Holders and Fasteners for Sliding Windows. 22,666, Horne, Transparent Map Cases, with a Map cut or Folded to show two Sections at once. 24,956, Smith, Anti-vibrator for Incandescent Gas Lamps. 2,756, Matthias, Thermo-electrical Building Bricks or Blocks. 27,591, Adams, Gas Lighting Apparatus. [1899] 1,616, Moore, Centrifugal Pump. 2,456, Stretton, Pipe Connexions. 2,520, Viggars, Roof Tile. 3,793, Adams, Closets and Flushing Apparatus. 4,886, Greenall, Gas and similar Fluid Meters. 5,088, Farini, Drawing Squares or Triangles for Calculating and other Purposes. 5,111, Schünemann & Rieder, Electrically Operated Gas Tap and Apparatus for Lighting at a Distance. 5,190, Overshiner, Telephone Switch Boards. 5,414, Sidebottom, Ventilating, Humidifying, Warming, Cooling, and Disinfecting Apparatus. 5,572, Hüllstrung, Insulators for Carrying Electrical Line Wires. 5,752, Hartridge, Ash Sifters. 6,101, Winslow, Tread for Stairs and for Manhole Covers. 6,341, Schleicher, Utilisation of Household and similar Waste. 7,247, Galecki, Lopatin, & Lopatin, Manufacture of Bricks, &c., from Lime and Sand. 7,614, Fox & Wright, Safety Appliance for Lifts. 7,644, Boulot, Gas Burners. 7,694, Rust & Lewis, Gas Cookers.

ABSTRACTS OF PATENTED INVENTIONS.

1,625.—ACETYLENE GAS HOLDER AND GENERATOR: *W. Owens.*—A tube inserted in the lower end of an inclined generator has a number of trays containing carbide, the water passes through a valve, which the bell of the gas-holder opens, and through a trap and a pipe to the trays in succession; the gas escapes to the bottom of a purifier, and after rising amongst a set of baffles, down which the water falls, passes into a dome at the top of the holder; the flow of water can be regulated by means of a cock, when it is desired to recharge the generator, and when the generator is exhausted it becomes filled with water, the water continuing to rise in the trap until it flows into another generator.

1,641.—GAS LIGHTING AND EXTINGUISHING: *A. Firth*—For gas lamps which have pilot jets a clockwork mechanism actuates at predetermined intervals the cocks which control the supply to the main burners. The apparatus—to be placed either in the ground or in the lamp-post—comprises an ordinary timepiece provided with a separate train of wheels. A time disc that rotates once in twenty-four hours carries projecting studs inserted opposite the hours for lighting or extinguishing the gas. At those appointed times the studs engage with a lever which sets in motion the separate train of wheels to move a cock that turns the gas on or off. A pilot jet supplied by means of a by-pass lights the main burner.

1,685.—HOT WATER SUPPLY: *W. H. Bashell & Tubular Bath Boiler Co.*—The invention relates to domestic hot water supply apparatus, and is intended to prevent the boiler and the pipes from becoming incrustated. The water to be heated circulates around a closed coil placed within the hot water cylinder, a tank supplies a non-furring liquid to the boiler, and after circulating in the cylinder the water is drawn off by branch pipes above the cylinder.

1,713.—DRYING FURNACES AND KILNS FOR BRICKS: *W. Tattersall.*—The bricks, being newly moulded, are heated by closing apertures in the walls of receiving chambers, wherein they are dried by the admission of hot air and furnace gases, as regulated by means of valves which control the side openings and of a valve in the chimney, the furnace gases being drawn by a fan and passing through channels beneath the chambers by means of doors, and then forced back into the furnace; when the bricks are hot enough not to crack side-ports are uncovered, and the chimney-valve is opened, thus the hot gases pass into and out of the chambers, whilst moist gases escape through a lower channel into the shaft.

1,750.—PLANING MACHINE FOR THE MITERED ENDS OF MOULDINGS: *R. Simpson.* — The plane-irons are arranged in two sets in the face of the rotary-disc, and are inclined so as to plane when the disc rotates in either direction, as it is driven by an open and crossed belt gearing upon the countershaft, a spring lever moves the reversing-fork which acts upon the pulley-clutch. The moulding rests against the rod-fence, and against one or other of the plate-fences—the fences being fitted adjustably upon the table.

1,753.—LAVATORY BASINS AND BATHS: *J. Gourlay.*—The basin is placed near the end of the bath in such a position that the handles of the supply-cocks and discharge-valve can be fixed in the bracket which supports the basin; the basin discharge pipe may pass to either the bath trap or a separate trap, and a hollow rib in the basin serves for an overflow passage.

1,758.—FIREPROOF FLOORS AND ROOFS: *H. K. Bromhead.*—Joists, of iron or steel, and about 4 in. deep, are laid about 18 in. apart, and blocks are fitted into the intervening spaces; the upper surface is covered with cement, asphalt, or other material, and the lower surface with plaster.

1,769.—FIREPROOF CEMENT AND ARTIFICIAL STONE: *P. Kleber.*—Ground burnt lime and quartz or sandstone are mixed together whilst a spray of diluted hydrochloric acid is directed upon them, and the plastic mass is then moulded into building blocks or other shapes, the acid is evaporated from the blocks within a steam-tight drum until a pressure equal to about seven atmospheres is obtained, the stones will be ready for use after exposure to the pressure during some hours, and the artificial stone thus formed may be finely ground for a cement.

1,818.—ATTACHMENT FOR DOOR-KNOBS AND HANDLES: *H. M. Williams.*—One knob, or handle, is secured to the spindle in the ordinary manner, the other has a locking-plate mounted within its recess, which engages with the ratchet teeth upon the spindle, and is held in position by a flanged collar that is moved into place by the insertion of the plate and is then screwed on to the door.

1819.—MANUFACTURE OF CALCIUM CARBIDE: *J. W. Kelly & H. Roantree.*—The electrical furnace is provided with a brickwork bottom, roofs, and walls, an inclined floor, a coloured glass sliding-door, carbon electrodes raised upon blocks near their inner ends, and outlets; between the carbons is fed a shaped block composed of about equal parts of chalk and lime and coke, or coal breeze, the generated gases, carbonic oxide and acid, escaping through a top opening, may be collected and burned to form carbonic acid; the carbide falls down the inclined floor to its own outlet.

1,932.—TRAPS FOR SEWERS AND DRAINS: *A. T. Chorley.*—A division, triangular in section, is made across the siphon-chamber. The inlet is formed socket-wise and the outlet is formed spigot-wise. Stoppers close the openings for cleansing purposes, and a stopper, cemented in, closes the top opening if it has not a ventilating pipe.

2,003.—CERAMIC STONE: *L. A. Garchey.*—The inventor pulverises and sifts certain vitrifiable materials, such as waste glass, slag, scoriæ, potter's and other clay. If clay or other material not readily fusible is used, the mass is agglutinated with a silicate or gum to form a paste. The devitrification is effected in a furnace at a temperature below the fusing point of the materials, and suitable dies are used to finally shape the moulded articles.

2,032-3.—WRENCHES AND PLIERS: *J. Pusey.*—For wrenches, a jaw pivotted to the handle and a jaw which slides on the stem fixed to the former jaw grip the nut, or pipe, &c. The latter jaw being acted upon by projections upon the forked handle, when the handle's motion is reversed the sliding jaw is pressed back by a pin upon the handle. For parallel pliers, one jaw is pivotted to the handle, which has a pin that enters a slot in the other jaw fixed to a solid or forked bar, which slides in a slot, or slots, in the former jaw; by employing a thumb-screw running in a slot, the pliers may serve for a hand-vice.

2,106.—ARC LAMPS: *J. O. Girdlestone & C. F. G. Thorkelin.*—Rods, pinned to insulated supports, carry the globe and lower carbon, and can be turned up outside the globe in order to release the latter and its top, which is held by a spring; or the globe may be held by a spring upon the lower carbon-holder, the carbon and globe being carried by rods which hang, inside the globe, from a plate fixed apart from the lamp's casing; the carbon-holder is guided by rollers within a central tube, whilst a plate guides the carbon; a cord from a drum upon a shaft provided with a brake pully and controlled by a coiled spring, supports the upper holder; around the pully is a strap connected with a brake lever and with a regulating lever that carries cores in series and shunt coils; the lamp is adapted for use upon any circuit.

2,153.—VENTILATION OF DRAINS: *J. Hutchison.*—Concentrical pipes, connected by webs, are fitted on to the upper end of the ventilating pipe at the ground level, the air passes through the grating to the space around the inner tube, which may be converted into use as a silt-box by means of a removable disc resting upon the bottom flange. In modified forms the silt-box assumes the shape and place of either an annular or a side chamber.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

May 9.—By NICHOLSON, GREAVES, & CO. (at Sheffield).

Fullwood, Yorks.—Yarncliffe Farm, 53 a. 2 r. 29 p., f.	£1,850

By H. J. WAY & SON (at Cowes).

Cowes, Isle of Wight.—9 and 10, High-st., f., r. 32*l.*	1,325

May 10.—By H. J. WAY & SON (at Newport).

Newport, Isle of Wight.—84 and 85, High-st., f., r. 33*l.*	500
11, Pyle-st., f., r. 12*l.*	200
Ryde-rd., Mount House, f.	525
Barton's Village, a freehold house and a tenement	395
Northwood, Isle of Wight.—Pallance-rd., a blacksmith's shop and premises, f., r. 24*l.*	170

By DRIVER & CO. (at Usk).

Gwehelog.—The Tump Farm, 8 a. 0 r. 38 p., f.	220
The Oak Farm, 129 a. 1 r. 23 p., f.	2,100
Three freehold farms, 28 a. 1 r. 10 p., f.	1,045
Poplar Cottage Farm, 11 a. 2 r. 0 p., f.	350
Wainfield Farm, 12 a. 0 r. 2 p., f.	265
Birch Grove Farm, 21 a. 1 r. 16 p., f.	490
A freehold sheep farm, 60 a. 2 r. 16 p., f.	910
A freehold sporting estate, 93 a. 2 r. 29 p., f.	1,050
Wood Farm, 9 a. 2 r. 3 p., f.	320
Pant-y-Llacs, and 17 a. 2 r. 15 p., f.	385
Walnut Tree Farm, 9 a. 1 r. 23 p., f.	200
The Bank Farm, 10 a. 1 r. 24 p., f.	300
Bardus, and 7 a. 3 r. 32 p., f.	145
Various enclosures of land with cottages and buildings thereon, 103 a. 3 r. 11 p., f. (in lots)	2,873
Several cottages and gardens, 6 a. 2 r. 24 p., f. (in lots)	657
Three cottage holdings, 15 a. 3 r. 38 p., f.	675
Trostrey, Mon.—Various enclosures with cottages, 47 a. 2 r. 38 p., f.	1,380
Four cottage holdings, 14 a. 3 r. 2 p., f.	385
Walnut Tree Cottage, and 4 a. 1 r. 9 p., f.	115
Dyffrn House, Mill, and 8 a. 3 r. 38 p., f.	200
New Wood Farm, 22 a. 3 r. 21 p., f.	410
Lower House Farm, 19 a., f.	345

May 11.—By FAREBROTHER, ELLIS, & CO.

Holloway.—Wedmore-st., f.g.r. 6*l.* 6s., reversion in 9 yrs.	605
5, 11, and 13, Wedmore-st., f., r. 63	1,050
7 and 9, Wedmore-st., area 9,600 ft., f., r. 80*l.*	1,420
18, Wedmore-st., area 19,100 ft., f., r. 57*l.*	1,700
Wedmore-st., f.g.r.'s 24*l.*, reversion in 8¼ yrs.	1,790
Wedmore-st., f.g.r.'s. 44*l.*, reversion in 11 yrs.	8,750
Wedmore-st., the "Black Horse" p.-h., f.g.r. 31*l.*, reversion in 11 yrs.	2,850
Blackheath.—6, 8, and 12, Bennett-pk., u.t. 52 yrs., g.r. 45*l.*, r. 180*l.*	885

By LONG & FARLOW (at Gipsy Hill).

Norwood.—109, Belvedere-rd., u.t. 219 yrs., g.r. 9*l.*, e.r. 50*l.*	300
1 to 4, 6, and 7, Crown-villas, u.t. 70 yrs., g.r. 27*l.*	840
Dulwich.—25, Croxted-rd., u.t. 43 yrs., g.r. 5*l.* 5s., e.r. 45*l.*	325

By DRIVER & CO. (at Usk).

Monkswood, Mon.—The Monkswood Estate, 1,116 a. 3 r. 9 p., f.	27,000

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Excavation Works, Whiston	Rotherham Corp.	H. H. Hickmott, Council Hall	May 29
*Paving Works	Coventry Corp.	J. K. Swindlehurst, St. Mary's Hall, Coventry	do.
*Laying Wood Paving	Willesden U.D.C.	O. C. Robson, Offices, Dyne-rd. Kilburn	May 30
*Brick Sewer	do.	do.	do.
*Kerbing, Channelling and Paving	Lewisham B. of W.	Surveyor, Town Hall, Catford, S.E.	do.
Sewerage Works, Walton-street	St. Alban's Corp.	City Surv. Victoria-st. St. Albans	do.
*Various Road Materials	Maidstone U.D.C.	T. F. Bunting, Fair Meadow, Maidstone	do.
Drainage Works, Holton-road, &c.	Barry (Glam.) U.D.C.	J. C. Pardoe, C.E. Holton-road, Barry	do.
Road Works, Romilly Park, &c.	do.	do.	do.
House, Groesion, R.S.O. Wales	.....	J. E. Jones, Carmel	May 31
Sewering, &c. Deep-lane	Basingstoke Corp.	G. Fitton, Boro Surv. Town Hall	do.
Widening Cwm-road, Llangibby	Pontypool R.D.C.	T. Watkins, Club-chmbrs. Pontypool	do.
Lodge, Derby Park	Bootle (Lancs.) Corp.	T. Cox, Archt. 11, Dale-st. Liverpool	do.
Reservoir, &c. Clayton, Yorks.	.....	Mines & France, Archts. 99, Swan-arcade, Bradford	do.
Boring, Sinking, &c. Warning Camp	Littlehampton U.D.C.	H. Howard, Town Offices, Littlehampton	do.
Two Houses, Northfield-rd. Dewsbury	.....	J. Kirk & Sons, Archt. Dewsbury	June 1
Street Works, Woodhouse-terrace	Middlesbrough Corp.	F. Baker, C.E. Municipal Buildings	do.
Additions to Infirmary, Hylton-road	Sunderland Union	W. & T. R. Milburn, Archt 20, Fawcett-st. Sunderland	do.
Watercourse, Dovestone - Clough, Greenfield	Ashton-under-Lyne, &c. Waterworks	G. H. Hill & Sons, Engr. Albert-sq. Manchester	do.
Pair Villas, Spring-street, Bridlington Quay	F. G. Purdon	J. Earnshaw, Archt. Wellington-rd. Bridlington Quay	do.
Two Villas, Crawfordsburn-road, Bangor, Ireland	J. Mercer	Young & Mackenzie, Archt 7, Donegall-sq. Belfast	June 2
Stores	Blackburn Brewery Co. Ltd.	J. Bertwistle, Archt. Tacketts-st. Blackburn	do.
Flint Road Metal	Eastbourne Union	L. Jeffery, Trinity-chmbrs. Eastbourne	do.
Water Tower, &c.	Hunstanton U.D.C.	Stevenson & Burstal, 38, Parliament-st. S.W.	do.
Roof, Central Station, Leith	North British Railway Co.	Blythe & Westland, C.E. 135, George-st. Edinburgh	June 3
Basalt Setts, &c.	Slough U.D.C.	W. W. Cooper, Surv. 1, Mackenzie-st. Slough	do.
Laying Cube Setts, &c.	do.	do.	do.
Sewerage Works, North Beach	Bridlington U.D.C.	C. Gray, Council Offices	do.
Sewers, West Heath	King's Norton, &c. U.D.C.	A. W. Cross, C.E. 23, Valentine-rd. King's Heath	do.
*Stoneware and Iron Sewers	Wycombe R.D.C.	Taylor, Sons, & Santo Crimp, 27, Gt. George-st. S.W.	do.
*Iron Water Main Pipes	Burgess Hill Water Co.	S. H. Norman, Offices, London-rd. Burgess Hill, Sussex	June 5
Boundary Walls, Gates, &c. Clifton	Bristol Corp.	T. H. Yabbicom, C.E. 63, Queen-sq. Bristol	do.
Schools	Keighley Sch. Bd.	W. & J. B. Bailey, Archt. 9, Market-street, Bradford	do.
Four Cottages, Victoria Bridge Station, Dublin	G.N.R. Co. (Ireland)	T. Morrison, Amiens-st. Terminus, Dublin	do.
Station Building, Laytown	do.	do.	do.
Additions to Trinity Schools, Whitehaven	.....	J. S. Moffat, Archt. 53, Church-st. Ulverston	do.
Tollhouse, Yar Bridge, Yarmouth, I.W.	Yar Bridge Co.	Newman & Cox, Surv. 5, Thomas-st. Ryde	do.
School, Moorfields, St. George	Bristol Sch. Bd.	J. Mackay, Kingswood, Bristol	do.
House, Shrivenham Station, Berks.	G. W. Ry. Co.	G. K. Mills, Paddington Station, W.	June 6
Subway, Newbridge Station, Mon.	do	do.	do.
Granite Road Metal	Branksome U.D.C.	S. J. Newman, Surv. Ashley-rd Branksome	do.
*Boundary Wall, Fencing, and Conveniences	Tottenham U.D.C.	P. E. Murphy, 712, High-rd. Tottenham	do.
*Surface Water Culvert	do.	do.	do.
*Surface Water Culvert, Chestnuts Estate	do.	do.	do.
*Repair of Tar and Asphalt Paving	do.	do.	do.
*Erection of Wall	Wandsworth Burial Bd	Offices, Town Hall, Wandsworth, S.W.	do.
*Deepening and Enlarging Well	High Welwyn Ld.	R. E. Middleton, 17, Victoria-st. S.W.	June 7

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Cottage, Morn Hill, Winchester	.....	W. J. Taylor, Cnty. Surv. The Castle, Winchester	June 7
Well Sinking, Balcombe, Sussex	Cuckfield R.D.C.	J. Mansergh, Engr. 5, Victoria-st. Westminster	June 8
Cast-iron Water Mains, Newbold-upon-Avon	Rugby R.D.C.	T. W. Willard, Surv. Rugby	do.
Destructor Buildings, Gorleston	Gt. Yarmouth T.C.	J. W. Cockrill, C.E Municipal Bldgs. Gt. Yarmouth	June 9
*Coastguard Buildings	Admiralty	Offices, 21, Northumberland-avenue, W.C.	do.
*Painting Works	Corpn. of London	The Engineer, Guildhall	do.
*Steel Joists	Battersea Vestry	Municipal Bldgs. Lavender Hill, S.W.	do.
*P. O. Balham	Commrs. H.M. Works	J. Wager, Offices, Storey's Gate, S.W.	do.
Broken Granite and Slag	Rushden (Northants.) U.D.C.	W. B. Madin, C.E. Vestry Hall, Rushden	June 10
Street Works	Kettering U.D.C.	T. R. Smith, Surv. Market Hill	do.
*Police Cottages and Cells	County of Southampton	W. J. Taylor, The Castle, Winchester	June 12
Additions to Workhouse, Herne Common	Blean (Kent) Union	J. E. Burch, 39, Castle-st. Canterbury	do.
*Wood Paving	Islington Vestry	J. P. Barber, Vestry Hall, Upper-st. N.	do.
Sewerage Works	Market Harborough R.D.C.	J. B. Everard, C.E. 6, Milstone-st. Leicester	June 13
*Pitching and Private Street Works	Cnty. Boro. West Ham	Lewis Angell, Town Hall, Stratford, E.	do.
Excavation Works	Shotley Bridge, &c. Gas Co.	T. Newbiggin & Son, Engr 5, Norfolk-st. Manchester	June 14
Steel Gasholder Tank	do.	do.	do.
Walling, Fencing, &c. High Carley Hospital	Ulverston Joint Hospital Bd.	C. W. Dean, 3, Benson-st. Ulverston	do.
*Builder's Work connected with Water Tower	West Ham Union	Clerk at Workhouse, Leytonstone	do.
*Re-drainage, Reservoirs, &c.	Kent County Asylums Com.	W. J. Jennings, 4, St. Margaret-st. Canterbury	June 15
*Reconstruction of Sewers, Manholes, &c.	Berkhampstead and Northchurch Joint Sewerage Com.	J. Lemon, 9, Victoria-st. S.W.	do.
*Making-up Roadways, &c. & Asphalting	Met. Asylums Board	Offices, Norfolk House, Norfolk-st. W.C.	do.
Electric Lighting Works	Dudley Corp.	Wilson & Storey, 66, Victoria-st. S.W.	June 17
*Widening Bridge	County of Southampton	W. J. Taylor, The Castle, Winchester	June 19
*Institute, Swimming Baths, Laundry, &c.	Beckenham U.D.C.	Council Offices	do.
*Farm Buildings, Hospital, Cottages, &c.	Herts C.C.	G. T. Hine, 35, Parliament st. S.W.	June 27
*Alterations and Additions to Library	Brighton Corp.	F. J. C. May, Town Hall, Brighton	July 27
*Schools	Woodford Sch. Bd.	E. Tidman, 24, Victoria-st. S.W.	No date
Two Houses and Stable, South Drive, Harrogate	.....	Bland & Bown, Archt North Park-rd. Harrogate	do.
Shop, Stabling, &c. near Carlisle	Dalston Co-op. Soc. Ld.	W. Pogson, Archt. 24, Devonshire-st. Carlisle	do.
Additions to Inn, &c. Llanelly Hill nr. Clydach	C. Edwards	B. J. Francis, Archt. Abergavenny	do.
Extensions, St. John's Church, Blackburn	.....	T. H. Duerden, Archt. 32, Richmond-ter. Blackburn	do.
Pipe Sewers, Edmondestown	Llantrisant R.D.C.	G. S. Morgan, Surv. School-st. Pontyclun	do.
Alterations to Asylum, Melrose, N.B.	.....	Sydney, Mitchell & Co. Archts. 13, Young-st. Edinburgh	do.
Infirmary, Deansley	Rochdale Union	Butterworth & Duncan, Archt. 4, South Parade, Rochdale	do.
Footpaths, &c Manselton, Swansea	.....	Alex. Young, Kidwelly, Swansea	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Clerk of Works	Romford R.D.C.	3l. 3s. per week	May 29
*Clerk of Works	Tottenham U.D.C.	2l. 10s. per week	June 6
*Sanitary Inspector	Hammersmith Vestry	110l. rising to 150l.	June 7
*Headmaster, Arts and Crafts School	L.C.C.	400l. per annum	June 19
*Temporary Architectural Assistant	E. Sussex C.C.	.....	No date

Those marked with an asterisk (*) *are advertised in this Number. Competitions, p.* —. *Contracts, pp.* iv. vi. viii. x. & xxi. *Public Appointments, pp.* xviii. xix. & xxi.

Llanbadock, Mon.—The Rhadyr Farm, 328 a. 0 r. 37 p., f. £11,000
Llan-Llwyd Farm, 38 a. 0 r. 35 p., f. 400
A freehold sporting estate, 151 a. 3 r. 32 p., f. 5,100
Fine freehold cottages and 1 a. 3 r. 26 p. 565
Several enclosures of land, 73 a. 2 r. 5 p., f. 2,920
Enclosures of building land, 15 a. 1 r. 29 p., f. 1,325
Kensington Cottage, and 3 a. 0 r. 24 p., f. 425
Gwehelog, Mon.—Baldwin's Castle and Little Castle farms, the Castle Brick and Tile Works, also the Castle House and ruins of Usk Castle, and 505 a. 2 r. 9 p., f. 16,250
Enclosures of building land, 17 a. 3 r. 13 p., f. 2,265
Enclosures of land, 2 a. 2 r. 8 p., f. 200
Usk, Mon.—Enclosures of land, 30 a. 0 r. 36 p., f. 2,225
Four Ash-st., Brook Cottage, and 0 a. 3r. 14 p., f. 275
Four Ash-st., &c., two building sites, f. 175
Four Ash-st., the Estate Timber Yard, f. 165
St. Mary Port-st., Vine Tree Cottage, and 0 a. 3 r. 0 p., f. 425
The Town Hall and Market Tolls, also Twyn-square, area 8,100 ft., f. 560

By TOOTELL & SONS (at Maidstone).

Langley, Kent.—Turkey Cottage, and 3 a. 0 r. 2 p., f. 400
Bearsted, Kent.—A plot of building land, with pumping station and waterworks thereon, f. 185
Maidstone, Kent.—5, King-st., f., r. 30*l.* 750
5, 7, and 9, Stone-st., f., r. 37*l.* 750
29, Upper Stone-st., f. 450
2, 4, and 6, St. Peter's-st., f. 380
Aylesford, Kent.—Freehold premises, with wharf, &c., area 1 acre 1,170

May 12.—By JONES, LANG, & Co.

Sydenham.—2 and 4, West-ter., u.t. 62 yrs., g.r. 1*l.* 10s. 500

By ROBERT REID.

Soho.—16 and 17, Gerrard-st., f., r. 260*l.* 5,900
2 and 3, Dansey-yard, f., e.r. 200*l.* 2,870
Hammersmith.—13 and 15, Girdler's-rd., u.t. 66½ yrs., g.r. 4*l.* 1,095

By A. J. SHEFFIELD.

Sudbury.—Wembley Park-rd., The Woodlands, f., r. 30*l.* £500
Bethnal Green.—11 to 15, Tuscan-st., and 11 to 14, Bonwell-st., u.t. 48½ yrs., g.r. 60*l.* 1,170
Limehouse.—17, 19, 21, and 23, Parnham-st., and 6 and 8, Carr-st., u.t. 13½ yrs., g.r. 11*l.* 11s. 420
Bow.—31, Merchant-st., u.t. 64 yrs., g.r. 6*l.*, e.r. 40*l.* 310

By C. P. WHITELEY.

Ealing.—1, 2, and 3, Blandford Villas, u.t. 69 yrs., g.r. 15*l.* 15s., r. 75*l.* 660
Bayswater.—155, Ledbury-rd., u.t. 60 yrs., g.r. 10*l.*, r. 55*l.* 500
Canonbury.—36, Alwyne-rd., u.t. 46 yrs., g.r. 10*l.*, r. 52*l.* 10s. 450
4 and 5, Alwyne-pl., u.t. 46 yrs., g.r. 20*l.*, r. 130*l.* 1,300
85 and 87, Marquess-rd., u.t. 47 yrs., g.r. nil, r. 120*l.* 1,415

By VERNON & SON (at High Wycombe).

High Wycombe, Bucks.—A freehold building site, area 5,500 ft. 460

By THOMAS MARTIN (at Exeter).

Whimple, Devon.—Church-rd, acre plot 1 acre, f. 100
Church-rd., &c., nine freehold cottages 610

By DRIVER & Co. (at Usk).

Glascoed, Mon.—New Jerusalem, and 11 a. 3 r. 21 p., f. 750
Poplar Tree, and 1 a. 1 r. 11 p., f. 135
House, dairy, and 3 a. 3 r. 23 p., f. 460
Malsmawr Farm, 144 a. 0 r. 17 p., f. 1,970
A freehold farm, 32 a. 0 r. 15 p. 550
Upper Cwm Hir Cottage, and 24 a. 0 r. 34 p., f. 540
Hill Wood, 15 a. 0 r. 18 p., f. 130
The Ton Holding, 6 a. 3 r. 11 p., f. 165
Holly Bush Farm, 17 a. 2 r. 28 p., f. 510
Various enclosures, with cottages, 139 a. 3 r. 21 p., f. 2,705
Several cottages and orchards, 17 a., f. 980
Five freehold holdings, 33 a. 2 r. 11 p. 950
A freehold house and 15 a. 1 r. 22 p. £525
The Cross, and 7 a. 3 r. 38 p., f. 315
Ashford Cottage, and 3 a. 1 r. 31 p., f. 285
Ty Mawr, and 8 a. 3 r. 10 p., f. 180
Upper House Farm, 29 a. 1 r. 22 p., f. 660
Llanbadock, Mon.—Two freehold holdings, 77 a. 1 r. 16 p., f. 740

By HALL, WATERIDGE, & OWEN (at Shrewsbury).

Cardington, Salop.—Comley Farm, 73 a. 0 r. 33 p., f. 2,000
Holly Hurst Farm, 30 a. 2 r. 6 p., f. 1,250
Hill House Farm, 27 a. 2 r. 27 p., f. 790
Broome Hall Farm, 46 a. 2 r. 17 p., f. 1,100
Shrewsbury.—18, 19, and 20, Swan Hill, f., r. 32*l.* 8s. 830

May 13.—By H. DUKE & SON (at Dorchester).

Upwey, Dorset.—Upwey Manor and Stottingway Farm, 290 a. 1 r. 1 p., f. 12,600
Stottingway House, and 2 a. 2 r., f. (including manor) 1,010
Enclosure of pasture, 3 a. 1 r. 33 p., f. 610
A freehold cottage and garden 330

By BRUTON, KNOWLES, & Co. (at Gloucester).

Gloucester (near).—The Wotton Court Estate, 208 a. 0 r. 20 p., f. 29,000
Berkeley, Glos.—"The Bell Inn" and Folly Farm, 70 a. 1 r. 4 p., f. 3,500
Awre, Glos.—Six freehold cottages and 2 a. 3 r. 26 p. 395
Various enclosures of land, 51 a. 2 r. 24 p., f. 1,730

May 15.—By BEALE & CAPPS.

Willesden.—Stonebridge Pk., Highfield, f. 1,400
Kilburn.—220, Kilburn Park-rd., f., r. 52*l.* 550
Bowes Pk.—7, 19, and 21, Whittington-rd., u.t. 79½ yrs., g.r. 20*l.* 5s., r. 36*l.* 885
Brixton.—321 to 329 (odd), Coldharbour-lane, and four cottages (Mayo Cottages), r. 335*l.*, also l.g.r. 7*l.* 10s., u.t. 5 yrs. 950

Elstree, Herts.—Drayton-rd., a plot of building land, f. £100

By W. A. BLAKEMORE.

Twickenham.—1, Waldegrave Gardens, f., r. 40*l.* 550
Battersea.—5, 7, and 9, Harroway-rd., u.t. 86 yrs., g.r. 15*l.* 605
Buckhurst Hill.—Palmerston-rd., Maybank, Beechmont, Hawkenbury, and Dalefield, f., r. 220*l.* 2,805
Clapton.—3, Queen's Down-rd., f., r. 65*l.* 955

By A. P. CLEAR.

North Fambridge, Essex.—Groom's Farm, 59 a. 0 r. 20 p., f. 520

By T. H. CURRIE.

Westbourne Park.—All Saints'-rd., f.g.r. 60*l.*, reversion in 80 yrs. 1,735
Lancaster-rd., &c., f.g.r. 64*l.*, reversion in 80 yrs. 1,760
Hammersmith.—50, Crefeld-rd., f., r. 45*l.* 450
Kentish Town.—41, Litcham-st., f. 400
9 and 10, Litcham-st., u.t. 55 yrs., g.r. 12*l.* 365
Edgware-rd.—15 and 16, Hatton-st., u.t. 21 yrs., g.r. 10*l.* 160

By HAMPTON & SONS.

South Kensington.—97, Cromwell-rd., u.t. 65 yrs., g.r., &c., 72*l.* 2s. 2,400

By T. N. TURNER.

Shepherd's Bush.—106, Coningham-rd., u.t. 81 yrs., g.r. 7*l.*, r. 32*l.* 355
Ealing.—14, The Park, u.t. 80 yrs., g.r. 7*l.*, r. 35*l.* 400
Highgate.—1 and 7, Orchard-rd., u.t. 80 yrs., g.r. 10*l.* 10s., r. 60*l.* 550
St. John's Wood.—62, Wellington-rd., u.t. 20 yrs., g.r. 10*l.*, r. 65*l.* 530

By J. H. BETHELL (at East Ham).

East Ham.—Gooseley-lane, 124 plots of building land, f. (in lots) 4,925

May 16.—By DAVID BURNETT & CO.

City of London.—Cheapside, f.g.r. 400*l.*, reversion in 18 yrs. 28,500
Hornsey.—44 to 58 (even), Hampden-rd., u.t. 82 yrs., g.r. 60*l.*, r. 246*l.* 2,040
Wandsworth.—366, Merton-rd., u.t. 95½ yrs., g.r. 6*l.* 330
Dalston.—90, Greenwood-rd., u.t. 52 yrs., g.r. 6*l.*, r. 38*l.* 415
Homerton.—7, 9, and 11, Templar-rd., u.t. 78 yrs., g.r. 13*l.* 10s. 515

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£	s.	d.	£	s.	d.
White Sea: first yellow deals	17	0	0	18	0	0
Second do.	13	5	0	14	15	0
Third do.	10	15	0	11	15	0
Battens, 40s., 30s., and 15s. less respectively.						
Petersburg: first yellow deals	11	15	0	14	5	0
Second do.	10	15	0	12	5	0
Battens, 30s. and 20s. less respectively.						
Petersburg, white deals	9	15	0	11	15	0
Do. white battens	7	10	0	9	0	0
Riga, white deals	8	5	0	9	5	0
Swedish mixed yellow deals	13	5	0	16	15	0
Third do.	12	5	0	14	5	0
Fourth do.	10	15	0	11	15	0
Fifth do.	9	15	0	10	15	0
Battens, 30s., 20s., and 10s. ess respectively.						
Whitewood, 10 to 20 per cent. less.						
Finnish unsorted yellow deals	9	15	0	10	5	0
Battens, 10s. and 5s. less respectively.						
Whitewood, 5 to 10 per cent. less.						
Norwegian second yellow battens	7	10	0	8	10	0
Third do.	7	0	0	8	0	0
Fourth do.	6	10	0	7	10	0
Whitewood, 10s. less.						
Danzig, Crown Deck deals, per 40 ft. 3 in.	0	15	0	1	5	0
Brack	0	12	0	1	0	0
St. Lawrence Pine deals, &c., per P.S.H.:—						
1st, Bright and Dry, regular sizes	19	0	0	25	10	0
" " oddments	12	0	0	18	15	0
2nd " regular sizes	14	0	0	17	5	0
" " oddments	9	10	0	13	0	0
3rd " regular sizes	9	5	0	10	5	0
" " oddments	7	0	0	8	10	0
4th " regular sizes	6	5	0	7	5	0
" " oddments	5	15	0	6	15	0
St. Lawrence Spruce deals, &c.						
First, regular sizes	8	5	0	10	5	0
Second "	7	5	0	8	5	0
Third "	7	0	0	7	15	0
Fourth "	5	15	0	6	15	0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.						
New Brunswick Spruce deals, &c.	7	0	0	7	15	0
Oddments, battens, and fourths	6	5	0	7	5	0
United States pitch pine planks and boards	8	15	0	12	5	0
Prepared Boards, per square						
¼ by 6½ and 7 in. 1st yellow	11	9		15	0	
" " 2nd "	10	3		12	0	
1 by 6½ and 7 in. 1st "	8	9		11	0	
" " " white	8	3		9	0	
" " 2nd yellow	8	3		10	0	
" " " white	6	9		7	6	
¾ by 6½ & 7 in. 1st & 2nd yellow	7	6		8	3	
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)	7	0		7	9	
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		5	6		7	9
¾ by 6½ and 7 in. 1st yellow and white (ditto)		5	6		6	3
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		5	0		5	9
Narrower widths at 10 per cent. less.						
3rd quality at 15 per cent. less than 2nd.						
Danzig and Memel Fir Timber— per load						
Best middling	2	7	6	3	7	6
Good middling and Second	1	17	6	3	2	6
Common middling	1	7	6	2	7	6
Undersized	1	7	6	1	12	6
Swedish and Norwegian Balks	1	2	6	1	12	6
Baltic Oak Timber—						
Danzig and Stettin—Large	3	15	0	4	5	0
Small	2	5	0	2	10	0
Quebec Timber per load						
Yellow Pine	4	17	6	6	10	0
Oak	4	5	0	6	5	0
Elm	4	5	0	5	5	0
Ash	3	10	0	4	15	0
Birch	3	15	0	5	15	0
New Brunswick, &c., Birch	2	10	0	3	5	0
American Pitch Pine Timber	2	16	0	3	5	0
Wainscot, per log, 18 cubic ft.—						
Crown (Eng. & Dutch) } nominal	4	5	0	6	0	0
Brack } nominal	3	10	0	4	10	0
Lathwood, per cubic fathom—						
Petersburg	4	0	0	6	10	0
Riga and Danzig	4	10	0	5	10	0
Norway Poles, per ft. run	0	0	1	0	0	1½
Oak Staves, per mille full size pipe						
Memel, Crown	210	0	0	220	0	0
Brack	180	0	0	190	0	0
Danzig	165	0	0	175	0	0
Bosnia, single Barrel (nominal)	28	0	0	30	0	0
United States, Pipe	35	0	0	42	10	0
Hogshead, extra heavy and double extra	27	10	0	32	10	0
Indian Teake per load	11	10	0	16	10	0
British Guiana Greenheart	0	0	0	8	0	0
Mahogany, per foot superficial—						
Honduras, cargo average	0	0	4½	0	0	6
Nicaragua, do.	0	0	4¾	0	0	5½
Tabasco, do.	0	0	4¼	0	0	6½
Mexican, do.	0	0	4	0	0	4
Panama, do.	0	0	3½	0	0	4
African, do.	0	0	3	0	0	4
Cuba, do.	0	0	3½	0	0	5
St. Domingo, do.	0	0	5½	0	0	7½
Do. Curls (good to prime)	0	0	5	0	0	7
Walnut, American (logs)	0	0	9	0	1	3
Do. do. (planks and boards)	0	2	0	0	4	6
Italian, per foot superficial	0	0	3	0	0	7
Black Sea, per ton	6	0	0	12	0	0
Satin Walnut (logs) per foot cube	0	1	0	0	1	3
" " (planks and boards)	0	2	0	0	2	9
Sequoia (Californian redwood), per foot cube	0	1	9	0	2	0
Whitewood, American (logs)	0	1	3	0	1	6
" " (planks and boards)	0	1	6	0	2	9
Quartered oak " "	0	2	3	0	4	0
Kauri pine (logs)	0	1	9	0	2	0
" " (planks)	0	2	3	0	2	9
Jarrah (planks)	0	2	3	0	2	6
Lancewood spars each, fresh and large	0	7	0	0	10	0
Lancewood spars, ordinary to fair	0	4	0	0	6	0
Degame spars	0	8	0	0	12	6

METALS.

IRON—Pig, in Scotland ton	3	3	9	0	0	0
Bar, Welsh, in London	6	0	0	6	5	0
Do. do. at works in Wales	5	15	0	5	17	6
Do. Staffordshire, in London	6	5	0	7	10	0
COPPER—British cake and ingot	80	10	0	81	10	0
Best selected	81	10	0	82	10	0
Sheets, strong	83	0	0	85	0	0
Chili bars	79	0	0	0	0	0
YELLOW METAL lb.		7d.			7½d.	
LEAD—Pig						
Spanish ton	14	5	0	0	0	0
English Com. Brands	14	10	0	0	0	0
Sheet, English, 6 lbs. per sq. ft. and upwards	15	10	0	0	0	0
Pipe	16	0	0	0	0	0
ZINC—English sheet ton	31	0	0	0	0	0
Vieille Montagne	31	10	0	0	0	0
Spelter	28	10	0	28	12	6
TIN—Straits	117	15	0	0	0	0
Australian	118	0	0	118	10	0
English Ingots	120	10	0	121	10	0
Banca	114	0	0	0	0	0
Billiton	113	0	0	0	0	0

OILS.

Linseed ton	18	5	0	18	7	6
Cocoanut, Cochin	29	5	0	0	0	0
Do. Ceylon	25	15	0	0	0	0
Palm, Lagos	24	0	0	0	0	0
Rapeseed, English, pale	22	15	0	0	0	0
Do. Brown	21	5	0	0	0	0
Cottonseed ref.	16	5	0	17	0	0
Oleine	17	0	0	19	0	0
Lubricating U.S.	0	5	6	0	7	6
Do. Black	0	5	0	0	6	0
TAR—Stockholm barrel	1	6	6	0	0	0
Archangel	1	0	0	0	0	0
Turpentine	34	5	0	0	0	0

* The prices for wood are shipping prices. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

TO CORRESPONDENTS.

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* Denotes *accepted.* † Denotes *provisionally accepted.*

BISHOPSTONE (Sussex).—For the erection of chimney-shaft, boiler-house, &c., Poverty Bottom, for the Newhaven and Seaford Water Company. Mr. F. S. Courtnay, engineer, Broad Sanctuary Chambers, Westminster:—

Longley & Co.	£3,500	Miles & Warner	£2,746
King & Son	3,350	Meredew & Wort	2,639
A. E. Nunn	3,203	Bostel, Son, & Peattie, London*	2,500
Whitehead & Co.	2,945		

DEVONPORT.—For the erection of a dwelling house and offices at Alfred-road, Ford, for Mr. C. F. Hocking. Mr. Edgar M. Leest, architect, Public Hall Chambers, Devonport:—

S. Scott, Ford* £220

DEVONPORT.—For alterations and additions to 22, Alfred-road, Ford, for Mr. C. F. Hocking. Mr. Edgar M. Leest, architect, Public Hall Chambers, Devonport:—

S. Scott, Ford* £110

FORRES (N.B.).—For the erection of a house, West End. Mr. J. Forrest, architect, High-street, Forres:—

Masonry.—D. Ross, Tollbooth-street, Forres*
Carpentry.—G. Forrest, Mosset-place, Forres*
Slating.—A. Forbes, Tytler-street, Forres*
Plumbing.—Munro & Son, Urquhart-street, Forres* } £620
Plastering.—J. & J. Munro, Aberlour*
Painting.—Arch. Macdonald, High-street, Forres*
Grates.—Smith & Son, High-street, Forres*

HADDENHAM (Bucks).—For the erection of house and shops, for Mr. Freeman Clarke. Messrs. W. F. Taylor & Son, architects, Aylesbury:—

Green & Co.	£1,287	Rose & Son	£1,080
Webster & Cannon	1,198	J. Holland	1,060 15
W. W. Howland	1,166	Folley, Blidlow*	1,050

LEWES.—For the erection of a house on The Walland's Park Estate, for Mr. G. J. Wightman. Mr. H. Curtis Card, architect, Lewes:—

H. Cruse* (being erected at so much per cent. on prime cost).

LEWES.—For new Baptist Sunday School, for the trustees of the Eastjute-street Baptist Sunday Schools. Mr. H. Curtis Card, architect:—

Berry & Bussey	£1,125	H. Constable*	£988 17
R. Piper	£1,106		

[All of Lewes.]

LONDON.—For the erection and completion of new Christchurch Schools and additions to the Bluecoat Schools, Caxton-street, Westminster, for the Vestry of St. Margaret and St. John, Westminster. Messrs. Beazley & Burrows, architects Messrs. Pryce Cuxon & Leigh, surveyors:—

		Credit.
General Builders	£6,777 0	—
Hockley & Sons	4,750 0	30
Wall & Co.	4,862 0	10
Minter	4,715 0	—
Martin Wells & Co.	4,699 0	20
Merredew & Co.	4,615 0	20
Haskins	4,529 15	25
Massom & Son	4,493 0	—
Nightingale	4,515 0	30
Braid, Patar, & Co.	4,480 0	—
Stimpson & Co.	4,260 0	30

LONDON.—For enlargement of infants' department, Rolls-road School, for the School Board for London. Mr. T. J. Bailey, Architect. Mr. C. G. Downing, surveyor:—

Johnson & Co.	£5,320	Smith & Sons	£4,527
Edwards & Medway	4,763	W. Downs	4,396
Outhwaite & Son	4,547	Stimpson & Co.	4,280

LONDON.—For new shop front, 107, Rye-lane, Peckham, for Mr. C. Biucchi. Messrs. Shaw & Galetti, architects, 49, Finsbury-pavement, E.C.:—

G. Parker	£275 0 0	C. Farley, Peckham*	£165 17 6
Swan & Son	220 0 0		
Spreckley & Co.	205 0 0		

LONDON.—For the erection of premises in Johnson's-court, Fleet-street, for Mr. R. S. Cartwright:—

J. Marsland	£9,965	Rider & Sons	£9,810
Howell J. Williams	9,876	Turtle & Appleton	9,164
Hornsey	9,875	Newton & Sons	9,071
Dove Bros.	9,845	Burman & Sons	8,595

LOWESTOFT.—For the erection of a laundry at the workhouse, Oulton, for the Union Guardians. Mr. Alfred Clarke, architect, 126, London-road, Lowestoft:—

J. Welham, Commercial-road, Lowestoft* ..£975

MANCHESTER.—For the erection of residence and stabling, &c., at Fairfield, for Mr. Councillor James Pollitt, of Openshaw. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester. Quantities by Mr. J. H. Stone, 53, King-street, Manchester:—

Wm. Shaw	£3,337	Robt. Carlyle, jun.	£3,115
Burgess & Galt	3,220	Bullivant & Sons	2,970
Geo. Macfarlane	3,216	E. & C. Jackson	2,962
Megarity & Co.	3,175		

[See also next page.

NOTTINGHAM.—For the erection of a detached residence in Winchester-road, Sherwood, for Mr. J. F. Fox. Messrs. W. F. Taylor & Son, architects, Aylesbury :—
Wm. Marsh, Nottingham* £527

PONTYPOOL.—For the erection of four villas, Griffith's Town. Mr. B. J. Francis, architect, Abergavenny. Quantities by architect :—

Lewis & Bradford	£2,103 14	Sier & Denman..	£1,540 0
Jno. Morgan	1,939 0	F. C. Parfitt, Maindee, Newport, Mon.* ..	1,520 0
Ed. Francis.....	1,750 0		
Jones Bros.....	1,592 10		

PONTYPOOL.—For alterations and additions to workhouse buildings, Panteg. Messrs. Lansdowne & Griggs, architects, Newport :—

Stephens & Bastow ..	£19,994 0 0	John Linton	£17,284 0 0
Morgan	18,228 6 8	C. H. Reed..	17,255 0 0
David Jones	17,980 0 0	Bailey Bros.	16,779 0 0
D. J. Davis	17,955 0 0	Richards, Newport*	15,980 0 0
Chas. Lock..	17,617 0 0		

SOUTH SHIELDS.—For additions, &c., to engine-house at electricity works, West Holborn, for the Corporation. Mr. F. Rennoldson, architect, Union-chambers, King-street, South Shields. Quantities by the architect :—

Robt. Allison	£2,622 12 2	J. C. Nichol..	£2,380 0 0
S. Sheriff	2,409 0 0	W. Christie ..	2,331 4 3
W. Robertson	2,400 8 11	T. Lumsden, Jarrow-on-Tyne*	2,296 0 0
John Moore ..	2,389 0 0		

SOUTH SHIELDS.—For erecting new store, Imeary-street, South Shields, for Mr. J. W. Pratt. Mr. Fred. Rennoldson, architect, South Shields :—

J. C. Nichol .	£1,702 0 0	Wm. Christie	1,561 12 0
Robt. Allison	1,700 0 0	C. Henderson	1,514 3 5
S. Sheriff....	1,700 0 0	Crawford & Sons	1,506 11 8½
Wm. Wilson	1,675 14 0	John Moore, South Shields*	1,481 0 0
Alex. Ross ..	1,660 0 0		
W. J. Robertson.....	1,651 4 2		

SOUTH SHIELDS.—Rebuilding premises, No. 3, Ocean-road, South Shields, for Mr. H. Hall. Mr. Fred Rennoldson, architect, South Shields :—

Jas. Young ..	£1,484 0 0	J. C. Nichol ..	£1,402 17 2
Alex. Ross ..	1,458 3 9	W. J. Robertson, South Shields*	1,388 13 2
Robt. Allison	1,446 11 8		
Wm. Christie	1,414 14 11		

STOKE MANDEVILLE (Bucks).—For the erection of farm buildings and cottages. Messrs. W. F. Taylor & Son, architects, Aylesbury :—

G. H. Gibson	£2,391 0	Green & Co., Aylesbury*	£2,163 10
Webster & Cannon	2,238 0		
Cook & Sons	2,174 0		

SWINDON.—For rebuilding "Forester's Arms" public-house, and shop, Fleet-street, for Messrs. T. & J. Arkell. Messrs. William Drew & Sons, architects, Swindon. Quantities by the architects :—

C. Williams ..	£4,257 17 0	W. Chambers	£3,983 0 0
H. & C. Spackman.....	4,144 6 6	A. J. Colborne	3,641 10 10
Flewelling & Huckson ..	4,081 0 0	[All of Swindon].	

SWINDON.—For road-making, sewers, &c., on the Ewen Swindon Estate, for Mr. James Morrison, J.P. Messrs. William Drew & Sons, surveyors, Swindon :—
Bagley & Wilkins, Swindon*.....£1,906 15 6

SWINDON.—For erection of house, Goddard-avenue, Swindon, for Mr. W. B. Wilmer. Messrs. William Drew & Sons, architects, Swindon :—
A. J. Colborne, Swindon* £435

SWINDON.—For erection of house, Goddard-avenue' for Mr. Sam Smith, F.C.S. Messrs. William Drew & Sons, architects, Swindon :—
F. J. Leddington, Swindon* £360

SWINDON.—For erection of bowling-alley at the Haydon-street Workmen's Club, for Mr. Howard Horsell. Messrs. William Drew & Sons, architects, Swindon :—
J. Lay, Swindon* £185 9 4

WENDOVER (Bucks).—For additions to farmhouse at Little London. Messrs. W. F. Taylor & Son, architects, Aylesbury :—

Webster&Cannon	£408 0 0	Senior & Clarke, Wendover* ..	£388 16 6
J. S. Holland ..	392 0 0		

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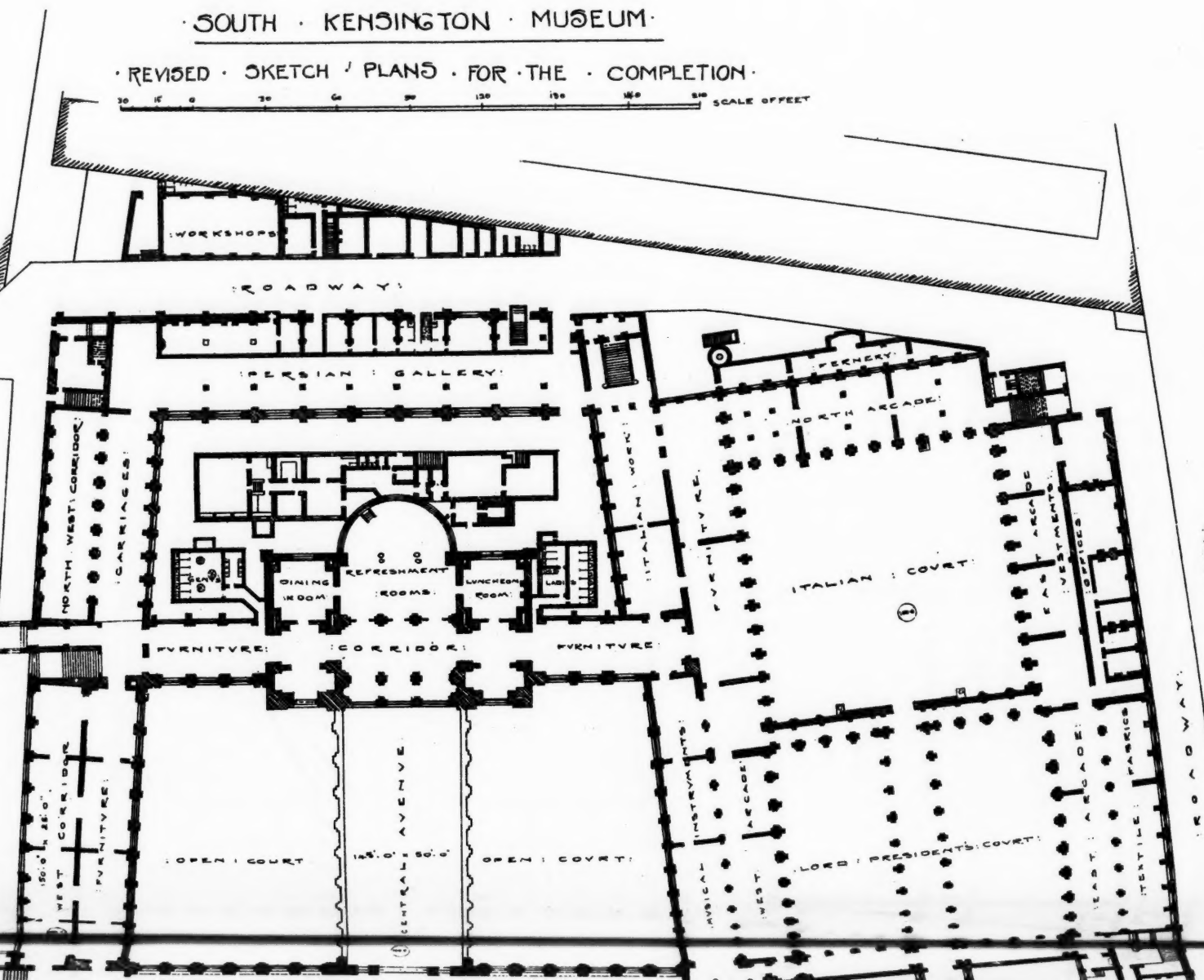

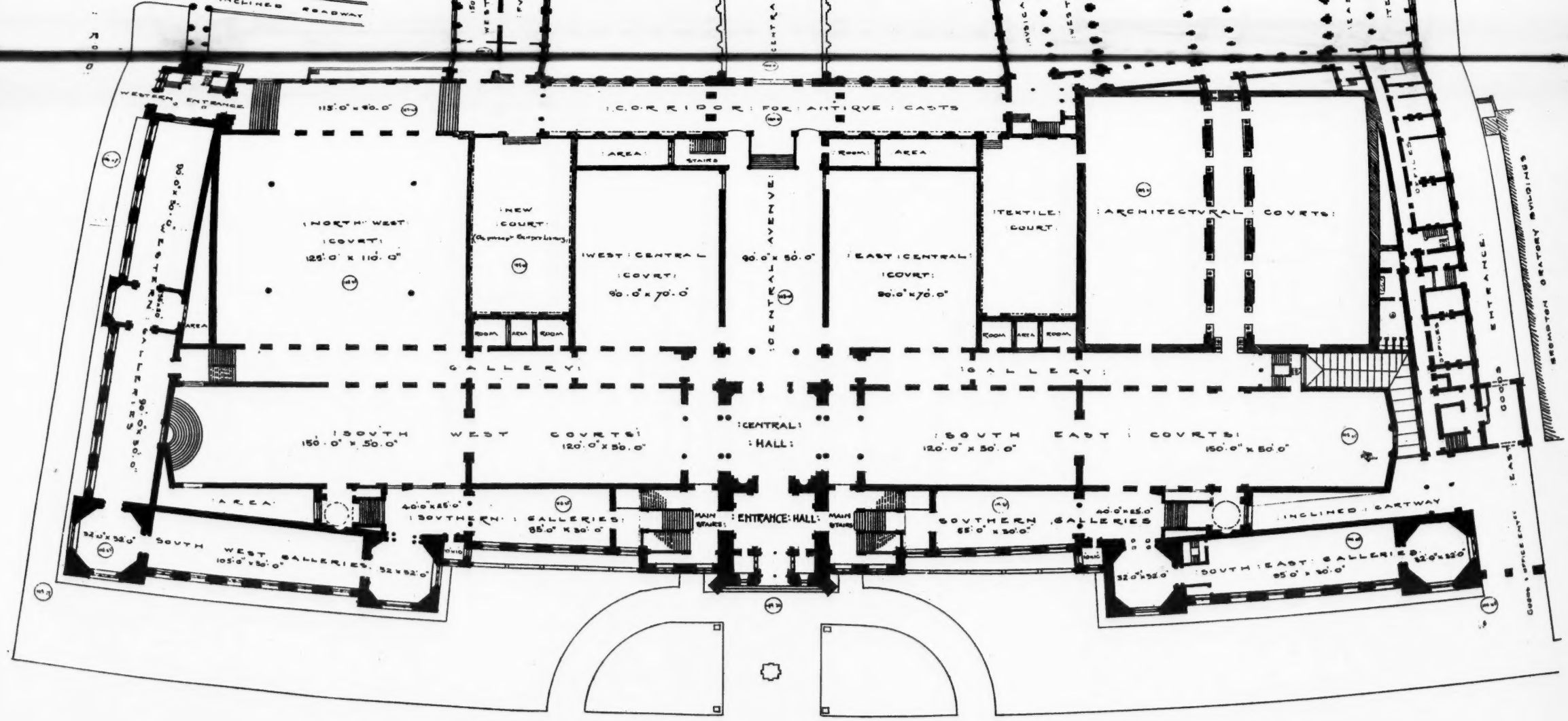

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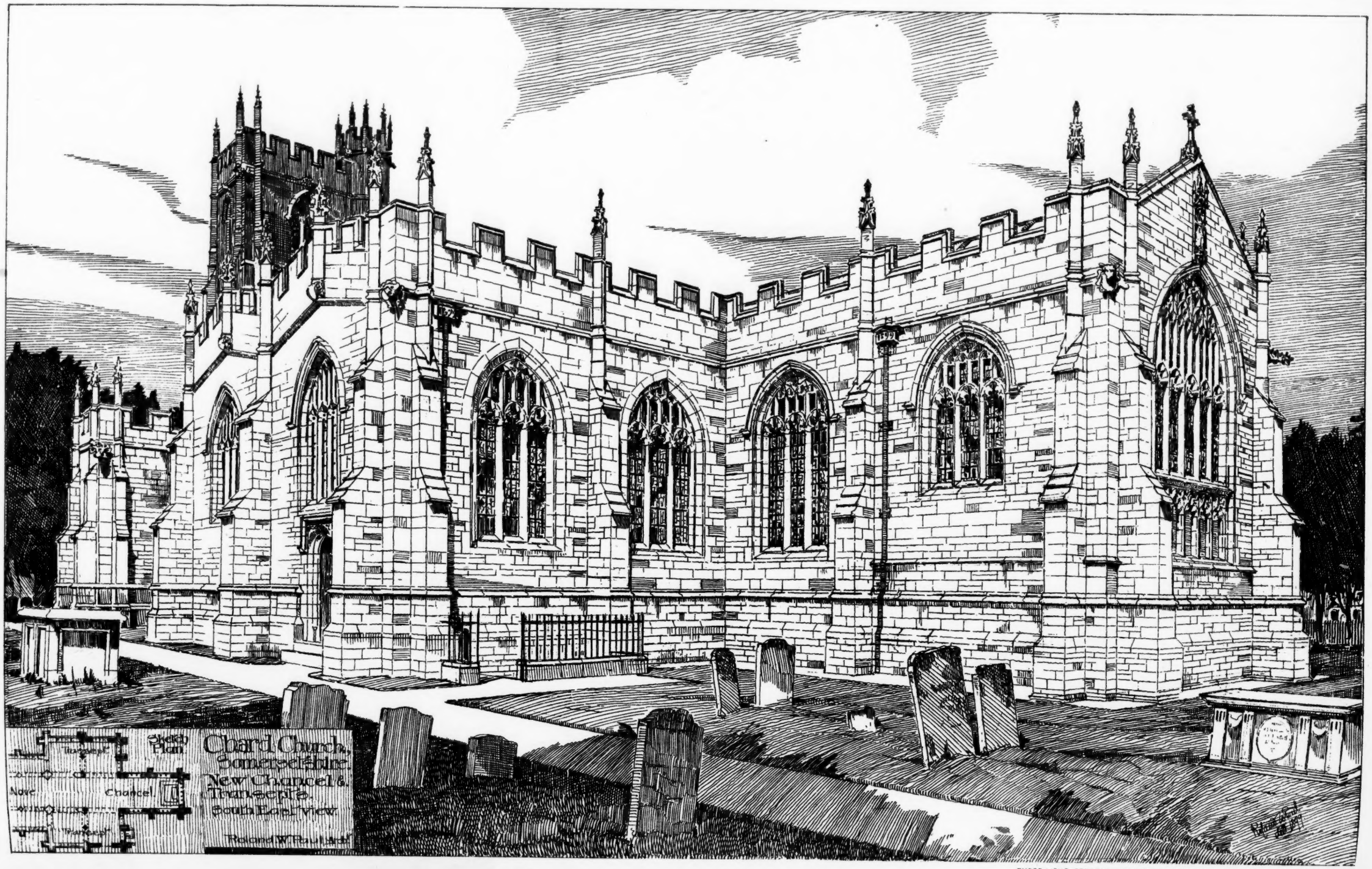

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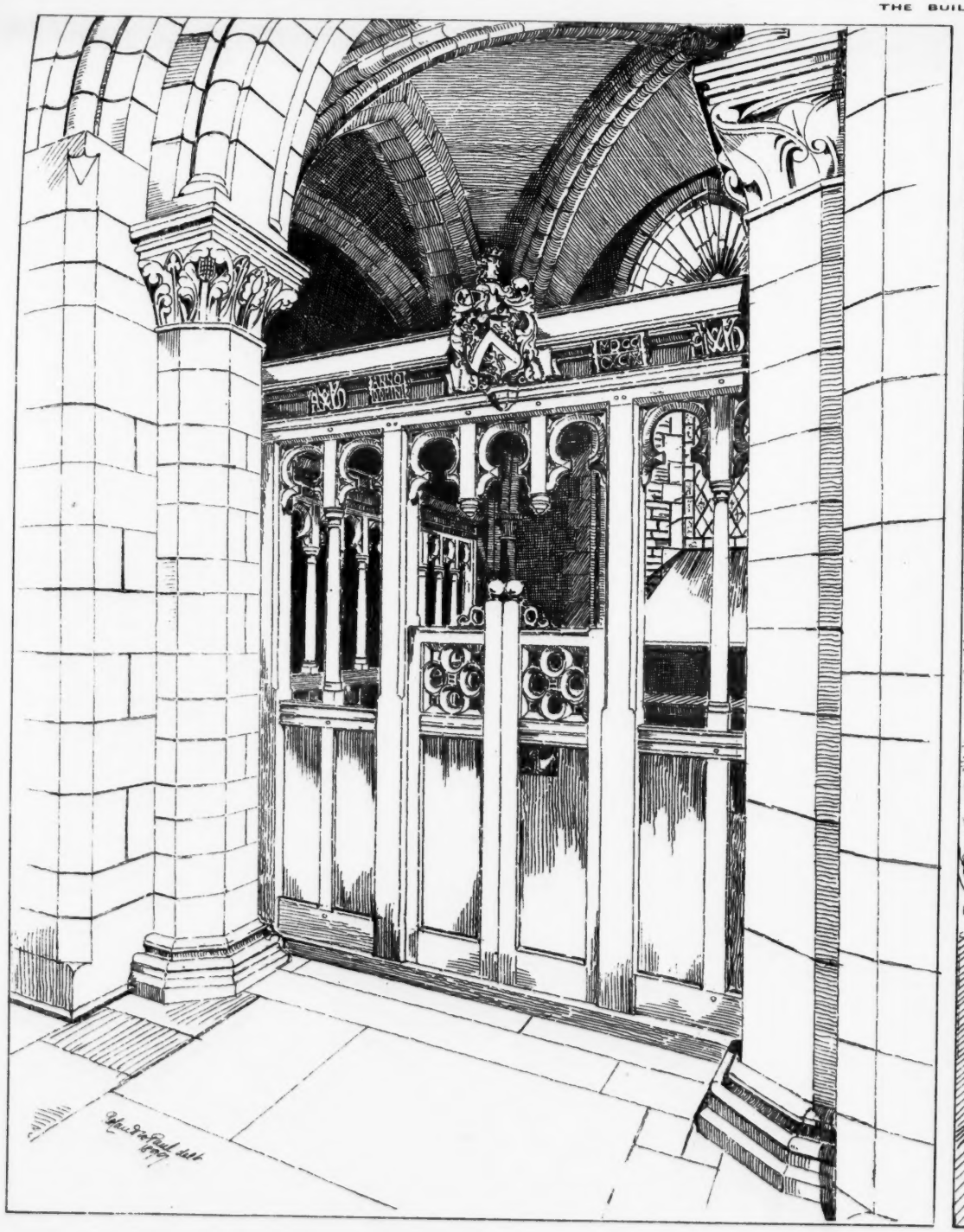

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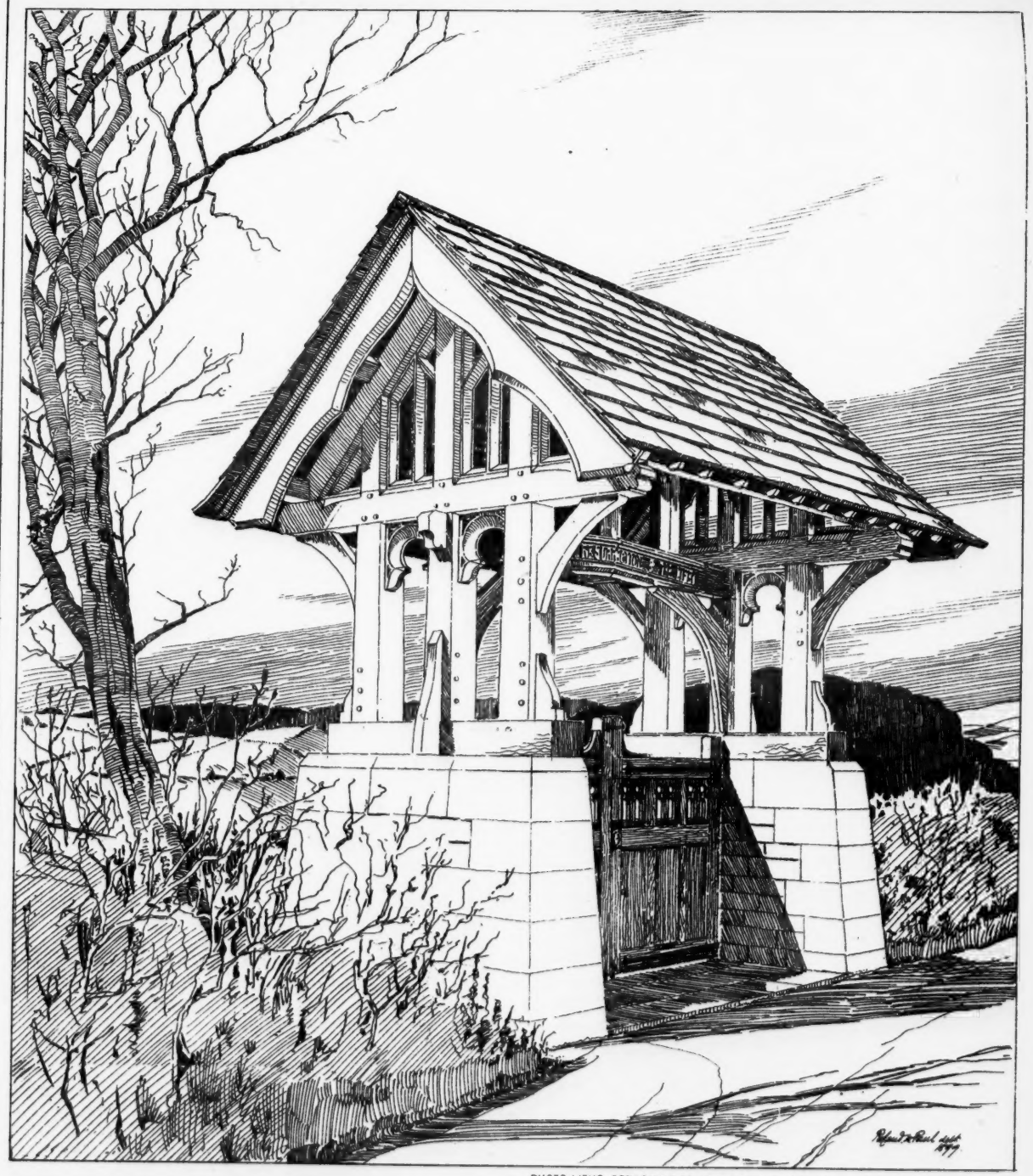

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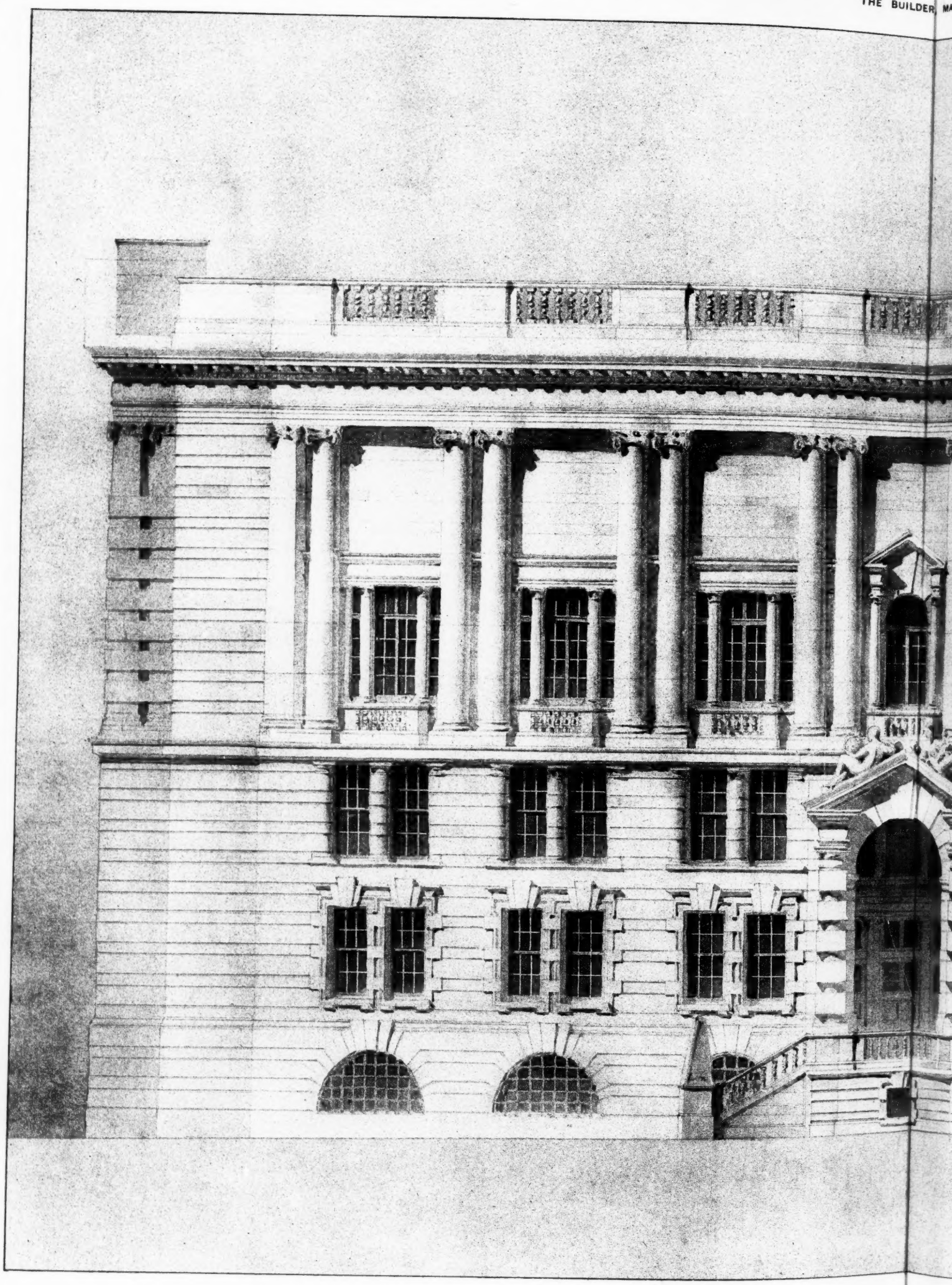

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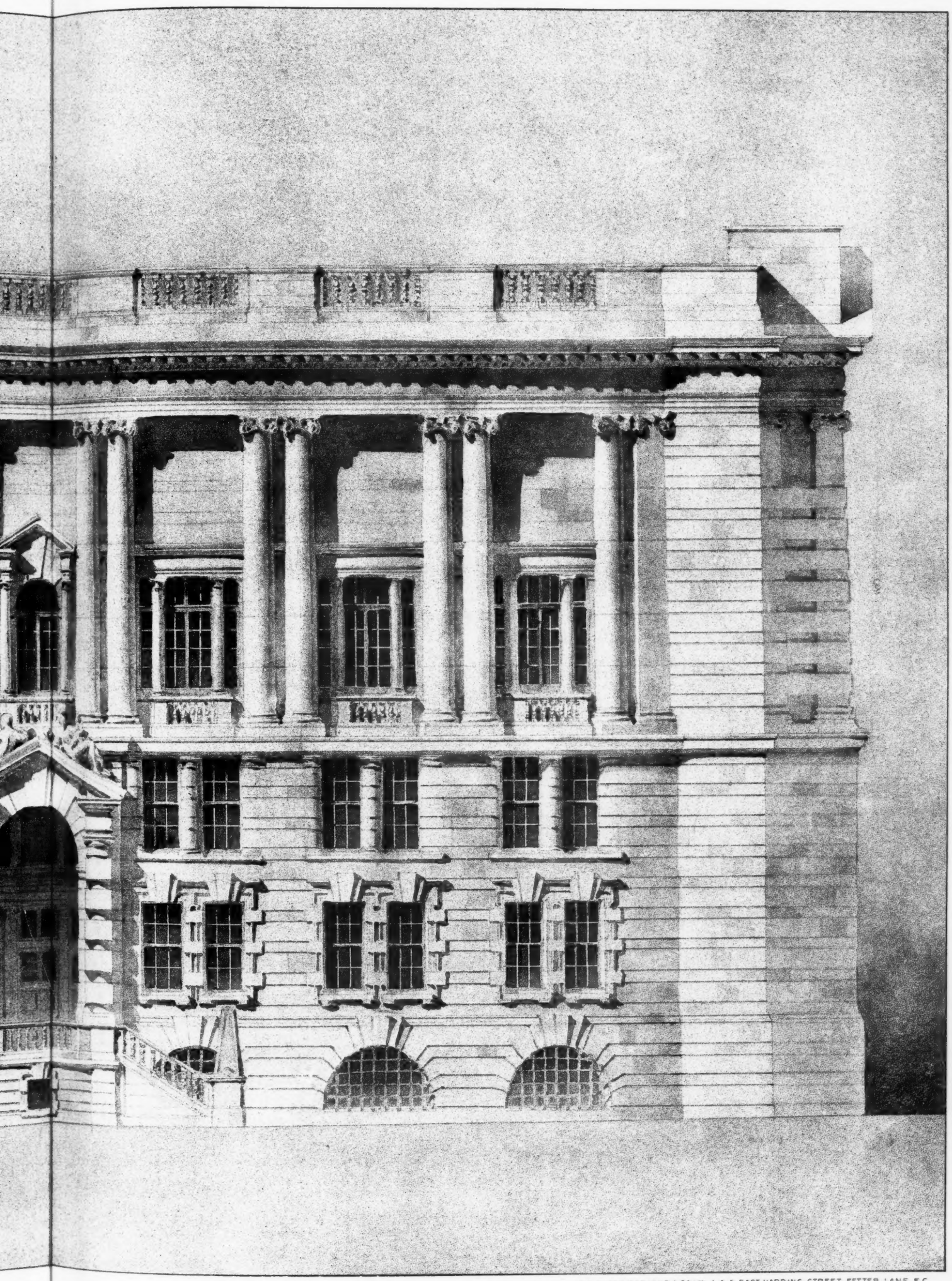

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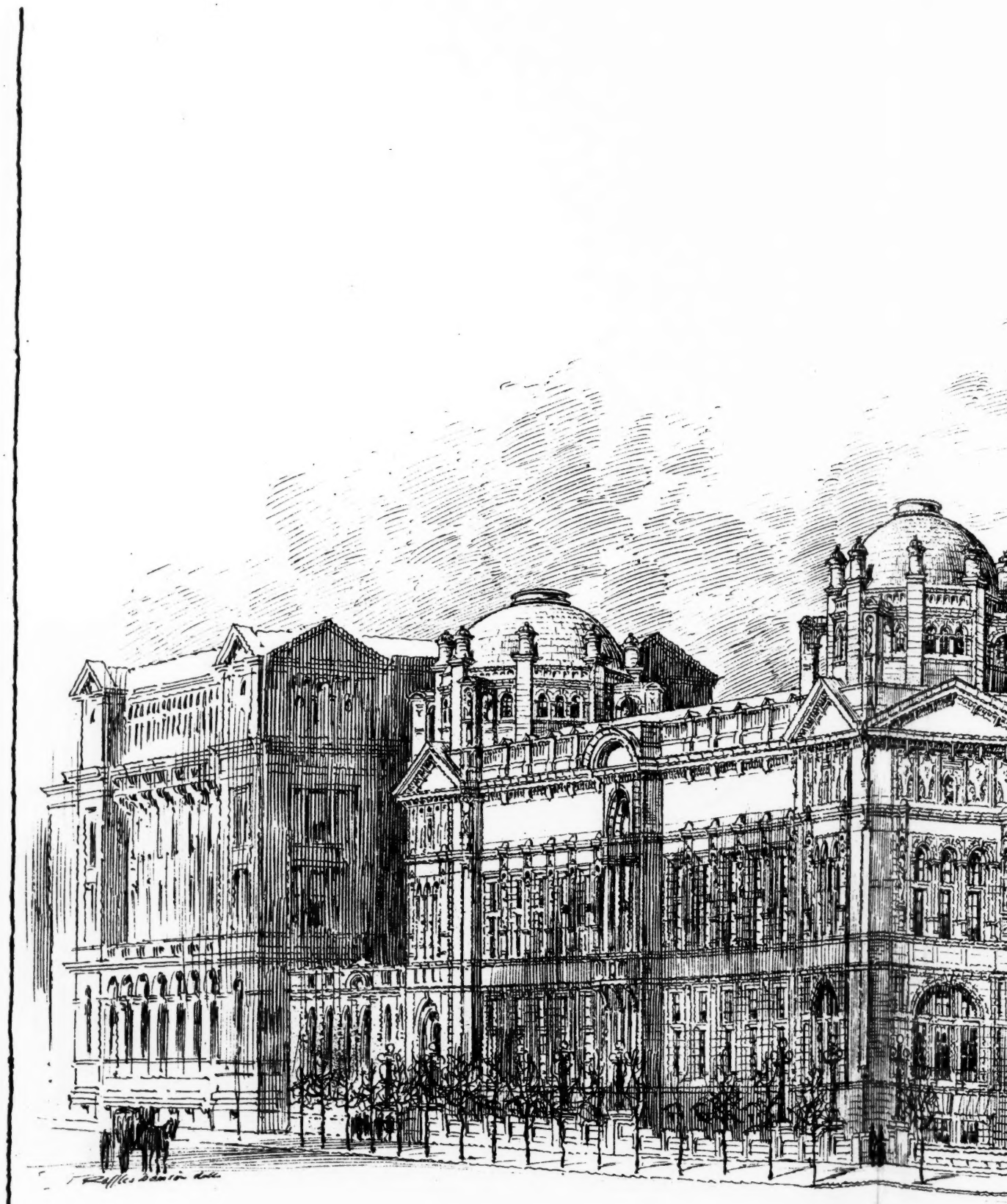

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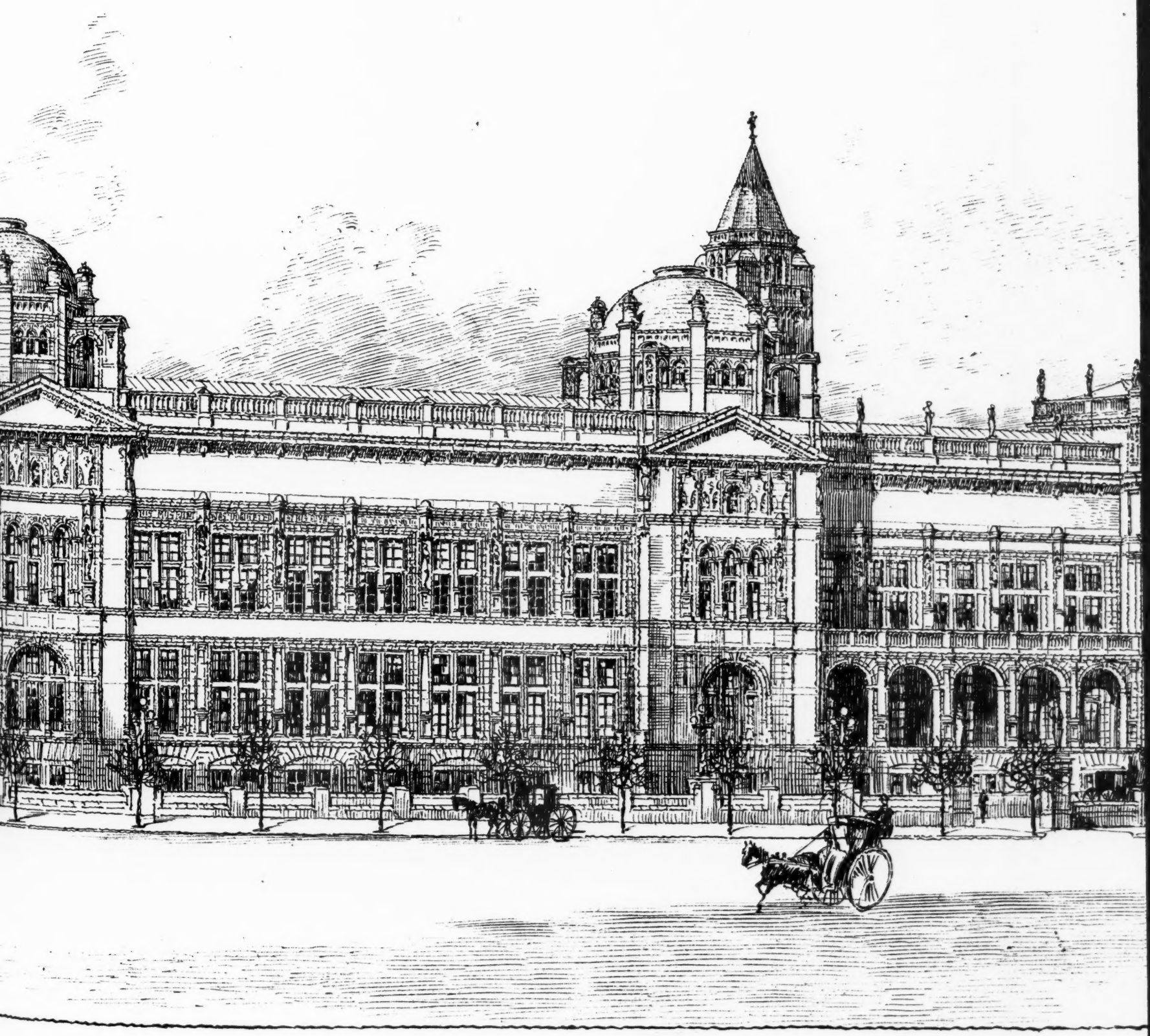

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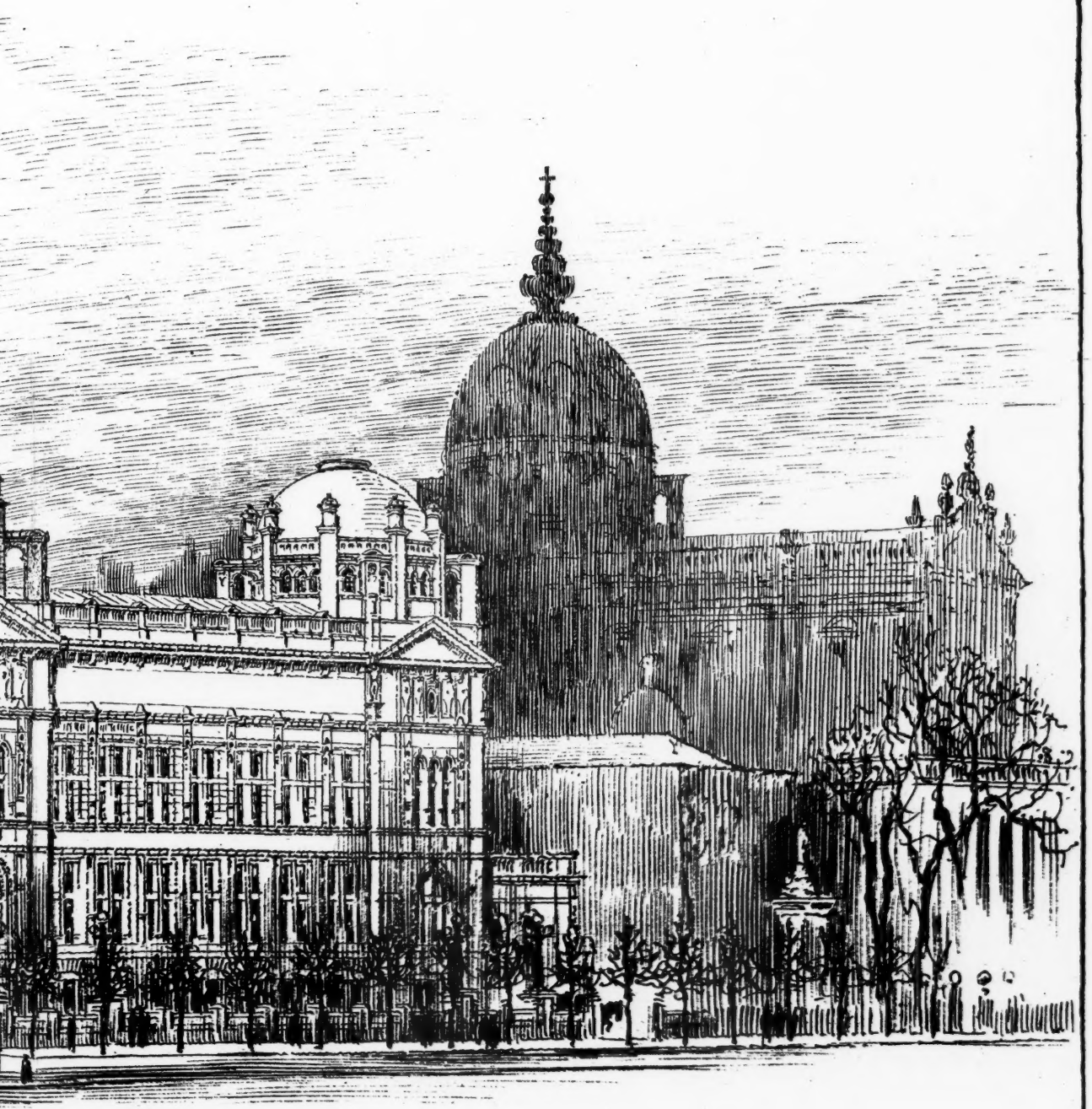

Arthur Stratton, ARA
Architect

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